

PULP & PAPER

SEPTEMBER 1950

Vol. 24

No. 10

Editorial Page



EXCLUSIVE NEW AIR VIEW OF GREAT NORTHERN PAPER CO'S

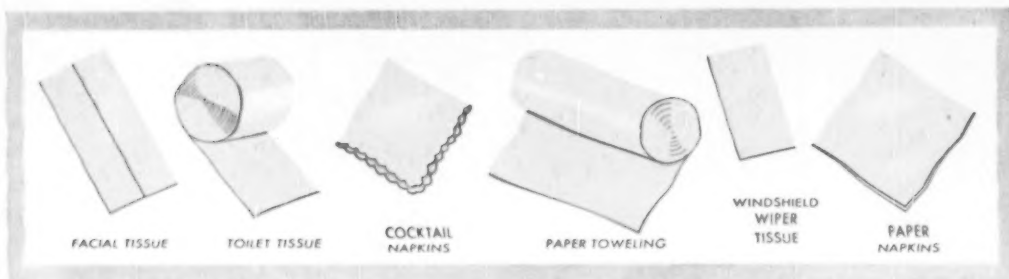
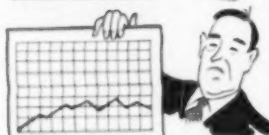
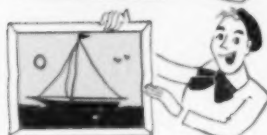
Millinocket, Maine, mill, with post-war production increased 840 tons per day. Five new machines have replaced old ones. Story on Page 32.

*Some artists paint pictures
with black and white . . .*

*But most find it's better when
they add a dash of color.*

*The same is true of your
paper sales picture . . .*

*Much better with a dash
of Du Pont Dyestuffs color.*



In a field where most products look alike, the addition of COLOR can be an important sales advantage. For color does more than get attention. When properly used, it says something about the product.

Gay, brightly-colored cocktail napkins, for example, fairly shout "party, fun!" Pastel-shaded toilet tissue seems to look softer, more absorbent. Every paper tissue product has some colors that are natural for it . . . that give an extra sales push.

Our Technical Staff will be glad to help you select the right color for your tissue products, and recommend dyes for getting these colors. For information write: E. I. du Pont de Nemours & Co. (Inc.), Dyestuffs Div., Wilmington 98, Delaware.

More color makes more business...for your customers and you



FOR GROUNDWOOD BASE PAPER

Du Pont basic dyes

FOR UNBLEACHED KRAFT

Du Pont basic dyes, direct dyes and dispersed organic pigments

FOR BLEACHED SULFITE

Du Pont direct dyes

Pontamine* Yellow SXG

Pontamine* Fast Yellow RL

Pontamine* Fast Scarlet
4BA and 4BS Conc. 150%

Pontamine* Fast Orange WS
Conc. 175%

Pontamine* Sky Blue 68X
Conc. 150%

*REG. U. S. PAT. OFF.

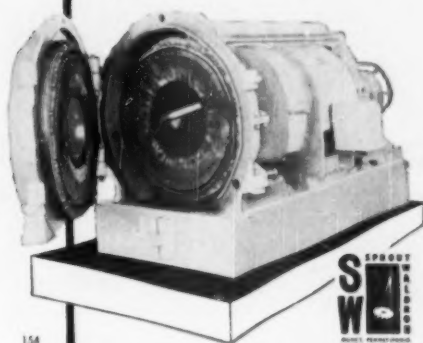
**Mills that
compare
Refiners**

choose Sprout-Waldron



Another SPROUT-WALDRON installation
in a large Southern mill.

S/W Refiners do a wide variety of jobs—all of them thoroughly and economically. Here are some applications: refining kraft, soda, and sulfite knatter and fine screen rejects; hogged bull screen rejects; knatter and second screen rejects of raw groundwood; semi-chemical chips of all kinds; spent chips after extraction process; bagasse, straw, and similar grasses; breaking down lumps in reclaimed waste paper stock; reduction and refining of rag and other half stocks, etc., etc.



154

Pinpointing exact pulp requirements is one of the most important problems in refining. The unique **Peripheral Control Ring** of Sprout-Waldron Refiners provides the solution to this problem. Great flexibility of adjustment inherent in this exclusive feature enables you to produce a wide variety of pulp characteristics.

But there are many more reasons why so many mills choose Sprout-Waldron Refiners. These precision-engineered units have rugged, long-life plates, available in many styles, easy and inexpensive to replace.

Your initial investment in a Sprout-Waldron Refiner is comparatively low. High production rates, economy in power consumption, ease of operation and maintenance are other money-saving factors.

Sprout-Waldron representatives have data to show you how these Refiners can step-up output and increase operating economy. Write today for Bulletin 41 to Sprout, Waldron & Co., Inc., 32 Waldron St., Muncy, Penna.

Sprout-Waldron
Manufacturing Engineers
SINCE 1858
MUNCY • PENNSYLVANIA



**FOR
TROUBLE-FREE
WAX
EMULSIONS**

Satisfactory water shedding for drinking cup or liquid container stock is only one of the many advantages you can gain by using Hercules Paracol[®], wax and wax-resin emulsions for paper and board.

A large selection of these versatile emulsions is available and each emulsion is tailor-made to meet specific requirements. They are used to improve sizing, printability and creasing, and bending properties of various grades of paper and board.

Other improved properties gained through the use of "Paracol" are reduced surface friction, reduced curl, and laying of fuzz. A large and experienced Technical Service staff is available to show you how "Paracol" can best work for you. Consult your nearest Hercules sales office.

HERCULES POWDER COMPANY 265 King Street, Wilmington, Delaware

HERCULES **PARACOL**
WAX AND WAX-RESIN EMULSIONS



Selling Books in the Streets in Germany in the 16th Century. Illustration from the Bettmann Archive

500 Years of Book Selling

Almost exactly five centuries ago, Johannes Gutenberg perfected his experiments with movable types and printed his first book. Soon after, printing shops were widely established. Starting in Nuremberg in 1470, Antony Koburger set up sixteen shops, publishing books and selling them in the principal cities of Europe. Religious books and pamphlets, often sold on the streets, had a powerful influence during the turbulent years of the Reformation.

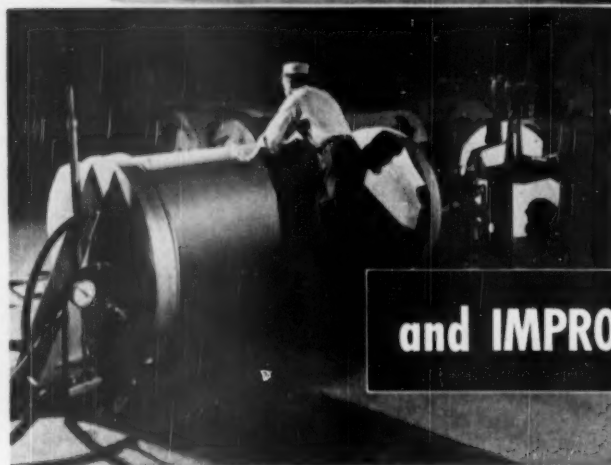
But it was not until cheap paper and the modern printing press made low-cost printing possible that book publishing rose to vast dimensions. Today in the United States alone 500 million books are published annually for distribution through retailers and by mail. Thus, book publishing and book selling have advanced education, culture, and entertainment, and have contributed substantially to the growth of the pulp and paper industry.

The dramatic story of paper is told in the sound-and-color film, "Paper—Pacemaker of Progress," and in a book under the same title. Both are presented by F. C. Huyck & Sons as a tribute to the Paper Industry. The book will be sent free upon request.

F. C. HUYCK & SONS • Kenwood Mills • RENSSELAER, N. Y.



CUT HANDLING COSTS



and **IMPROVE ROLL QUALITY**

More and more mills are doing it with . . .

THE **VALLEY** ROLL END PASTER

VALLEY IRON WORKS CO., APPLETON, WISCONSIN

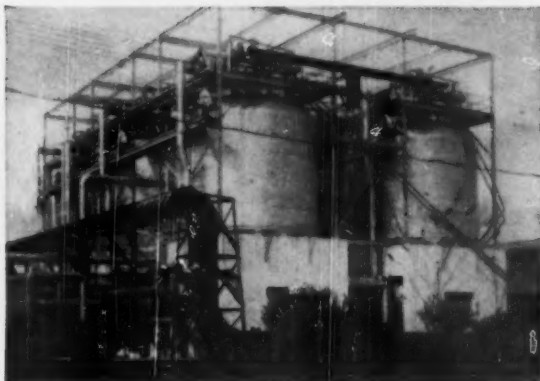
SULPHUR

***Interesting Facts Concerning This Basic
Raw Material from the Gulf Coast Region**

***SUPERHEATED WATER...**

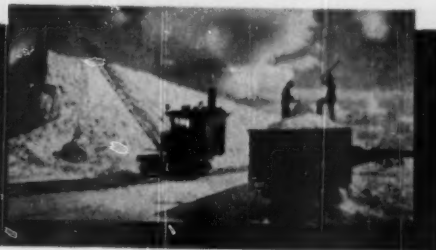
Mining operations are most successfully carried out if the water pumped

into the sulphur deposit is heated under pressure to a temperature of about 320° F. For large scale mining, enormous quantities of water are required, so, a primary requisite is an adequate supply of suitable water and an efficient power plant in which to heat it.



To insure a continuous supply of water at Newgulf, it is the practice to use river water pumped in time of flood or full flow and stored in large reservoirs. This supply is supplemented, when necessary, with well water. Water so obtained is seldom suitable for use in boilers or mine water heaters without being treated first because of natural salts in solution. Softening by chemical treatment is necessary to prevent deposition of scale on boiler tubes and hot water lines.

Loading operations at one of the huge vats of Sulphur at our Newgulf, Texas mine. Such mountains of Sulphur are constantly being built at our mines, from which shipments are continually made.



TEXAS GULF  SULPHUR CO. INC.
75 East 45th St. New York 17, N. Y.
Mines: Newgulf and Moss Bluff, Texas

RUGGED!



This seal assures your customers a product made from high alpha pure wood cellulose.

"SOLKA" is a specification-built cellulose; the best of its kind

Choose "SOLKA" for extraordinary endurance and flexibility. This pulp is the foundation of really tough ledger papers. Performance has earned "SOLKA" first position in the sturdy-paper field.

Brown Company also offers you full use of its Technical Service Division. It will help solve your difficult paper problems at any time.

BROWN COMPANY *Foremost Producers of Purified Cellulose*

Pulp Sales Offices:

500 Fifth Avenue, New York 18, N.Y. • 445 Congress Street, Portland 3, Maine
110 S. Dearborn Street, Chicago 3, Illinois • 58 Sutter Street, San Francisco 4, California
Brown Corporation, 906 Sun Life Bldg., Montreal 2, P.Q., Canada
Mills: Berlin, N. H.

TENAX FELTS

custom built for your machine, help
you make better paper at lower cost

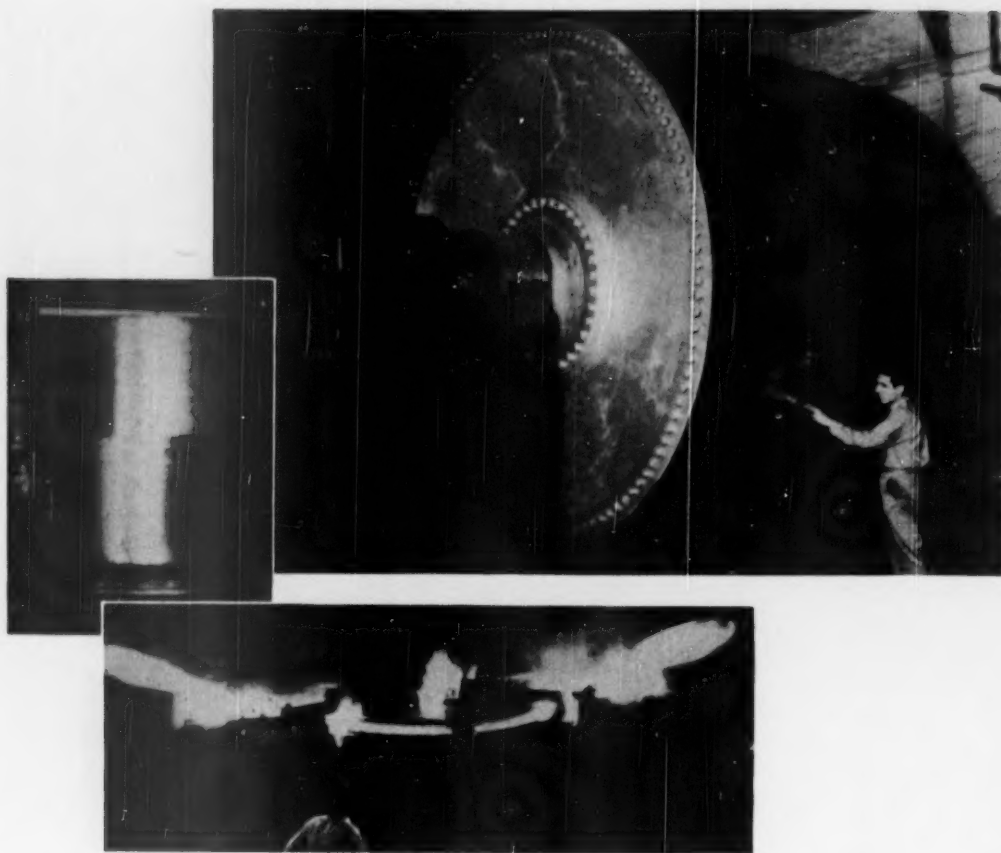


A TENAX FELT COMING OUT OF THE FULLING MACHINE. FULLING OR THE WETTING PROCESS, KNITS THE FIBRES TOGETHER, SHRINKS THE FELT TO THE EXACT DIMENSIONS DESIRED, AND ALSO GIVES IT A HEAVIER, DEEPER TEXTURE.

Made by experienced and skillful craftsmen from the finest selected wools, Tenax Felts are individually designed for your paper machines. Each Felt is conceived and produced to keep a particular machine of yours operating at its most profitable efficiency.

The Lockport representative in your territory is fully qualified to advise on all technical questions relating to felts. He is at your service as is our plant and all its people. We invite your inquiries.

LOCKPORT FELT COMPANY—NEWFANE, NEW YORK



A REFLECTION OF QUALITY

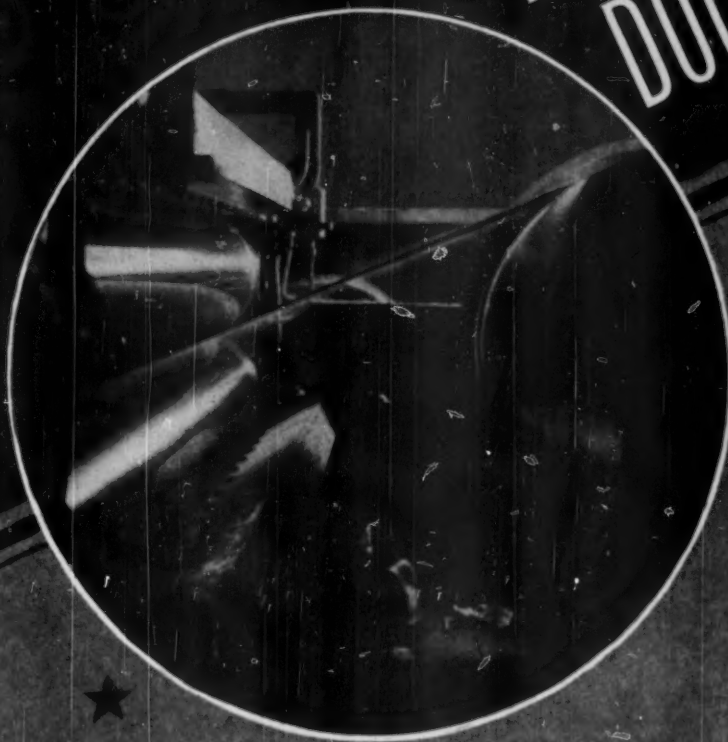
The mirror like finish on this 12-foot Yankee dryer reflects the same quality built into more than 425 rolls at Newport News since the war's end. Twenty-six dryer rolls of the size shown have been cast and machined with a finish to meet the users' requirements.

The rugged performance record of the Newport News all welded log barker has proven the soundness of its sturdy one piece construction. Other Newport News papermaking equipment in use in leading mills includes head boxes, digesters and tanks. INQUIRIES ARE INVITED.

NEWPORT NEWS SHIPBUILDING & DRYDOCK CO.

NEWPORT NEWS, VIRGINIA

LODDING DOCTORS



★
Wherever a good doctor is needed... Loddng
Engineering Corporation, Worcester, Mass.
Represented outside New England by W. E. Greene
Corporation, Woolworth Building, New York.

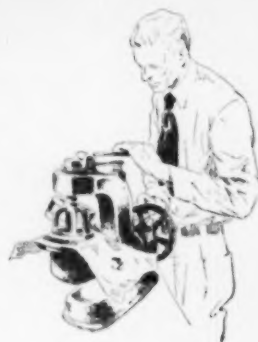
★ Breaker rolls

WISCONSIN-MICHIGAN — another in a series of scenes . . . areas where Appleton Wires serve the paper industry.



A SAGA of trees to model T's . . . that's the romantic story of Wisconsin-Michigan, land of lumberjack lore and birthplace of mass production.

Here is truly an area of vivid contrast, where a vacationist's dreamland of crystal lakes and singing streams stands in the back yard of America's mighty industrial empire. Playing an important role in this drama of productive might are 114 paper mills . . . most of which know, from long experience, that *Appleton Wires are Good Wires!*

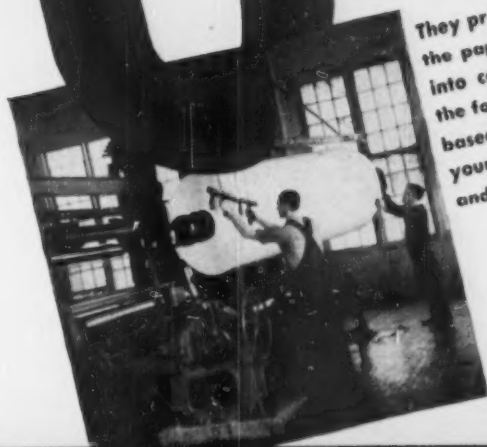


APPLETON WIRE WORKS, INC. • APPLETON, WISCONSIN

© 1950, Appleton Wire Works



National Aniline Technical Service links our "labs" with your mills.



They provide color matches for the papers you wish to put into commercial production, the formulae for which, are based on careful analysis of your submitted samples and specifications.

National Aniline PAPER DYES

NATIONAL ANILINE DIVISION

ALLIED CHEMICAL AND DYE CORPORATION

40 REXTON STREET, NEW YORK 6, N.Y.

Branches: Philadelphia, Chicago

San Francisco, Portland, Ore., Birmingham, Baltimore

Atlanta, New Orleans, Indianapolis, Toronto

COPPER

helps this economizer cut
paper production costs

\$1.00 per ton

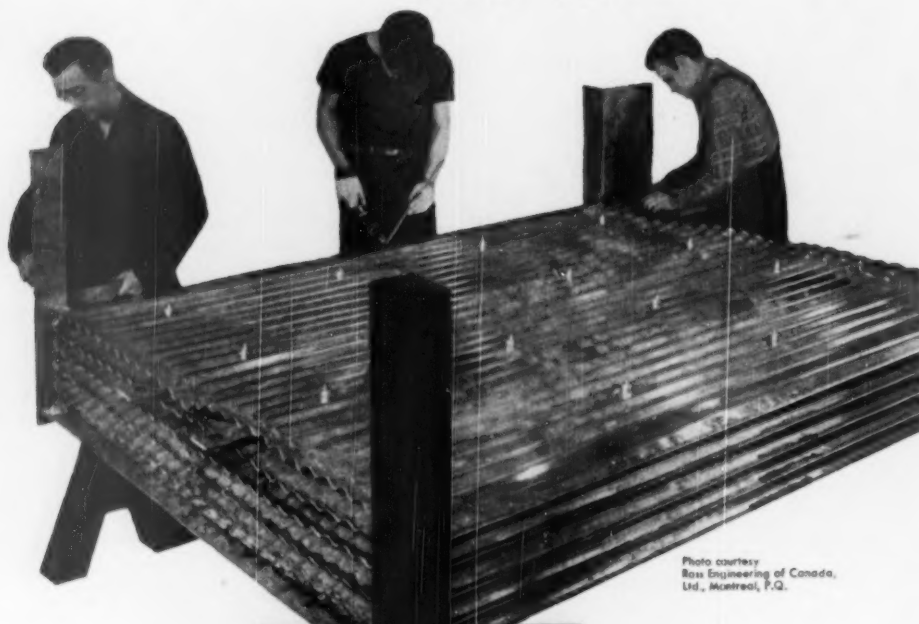
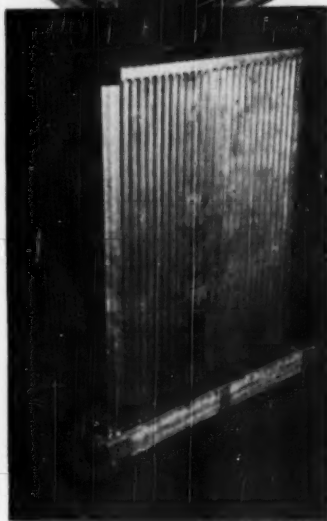


Photo courtesy
Ross Engineering of Canada,
Ltd., Montreal, P.Q.

THIS Ross-Briner Economizer unit is designed to absorb heat from outgoing air over the drying rolls of a paper machine, and to transfer that heat to the incoming air.

Makers of this equipment say it can reduce production costs \$1.00 per ton. As usual, these results are the fruit of good design teamed with the right material.

In this case, the material is ANACONDA Sheet Copper, corrugated. ANACONDA Copper provides the high resistance to corrosion, rapid and efficient heat transfer,



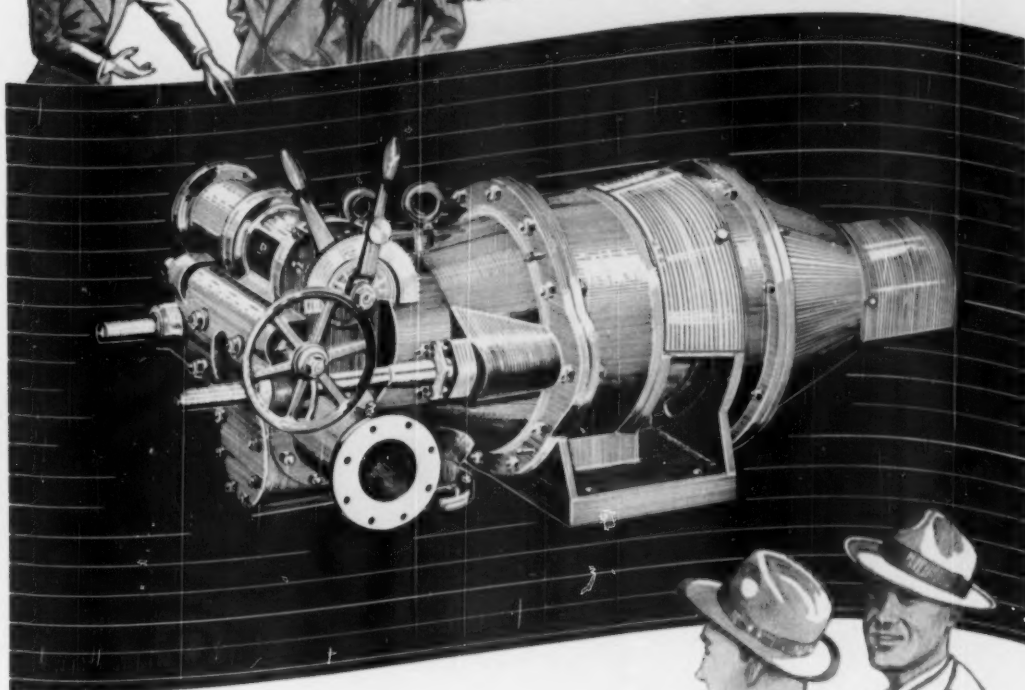
correct and uniform temper, and good soldering and brazing qualities which, in this instance, are all essential to good performance and fabricating economy.

Copper and its alloys are among the most versatile of engineering metals. Anaconda's Technical Department is always ready to serve you with counsel on the application of copper to your products. Just write to The American Brass Company, Waterbury 20, Connecticut. In Canada: Anaconda American Brass Ltd., New Toronto, Ontario.

For copper and its alloys . . . consult **ANACONDA[®]**



It's Just Common Sense!



The way

the Morden "Stock-Maker" combines beating or refining into one simple and continuous operation.

More than 350 "Stock-Makers" in over 100 mills have proven its superiority for the vast majority of stock treatment requirements.

May we assist you in surveying "Stock-Maker's" advantages for your particular requirements?

MORDEN MACHINES COMPANY

PACIFIC BUILDING - PORTLAND 4, OREGON

in Canada

The William Kennedy & Sons, Ltd., Owen Sound, Ontario

in England

Millsaugh, Limited, Sheffield

Eastern Sales Representative: Union Machine Company, Fitchburg, Massachusetts

September 1950

11

have you tried **BECCO PEROXYGEN**
compounds?

...for

**BLEACHING ...
SULFITES
GROUNDWOODS
SEMI-CHEMICALS
AGRICULTURAL RESIDUES
KRAFTS (Super-Bleaching)**

Decolorizing by oxidation is most efficient when you use BECCO 50% HYDROGEN PEROXIDE and BECCO bleaching processes . . .

There is no degradation of pulp . . . virtually no yield loss . . . no washing stages are needed.

BECCO Hydrogen Peroxide gives you pulps of high brightness at low cost.

BECCO Research has devised new and efficient high density bleaching processes for groundwoods, semi-chemicals, sulfites, krafts, and agricultural wastes. Send for literature, or for a BECCO representative, a specialist in peroxide bleaching.

BECCO SALES CORPORATION

Sales Agent for BUFFALO ELECTRO-CHEMICAL COMPANY, INC.

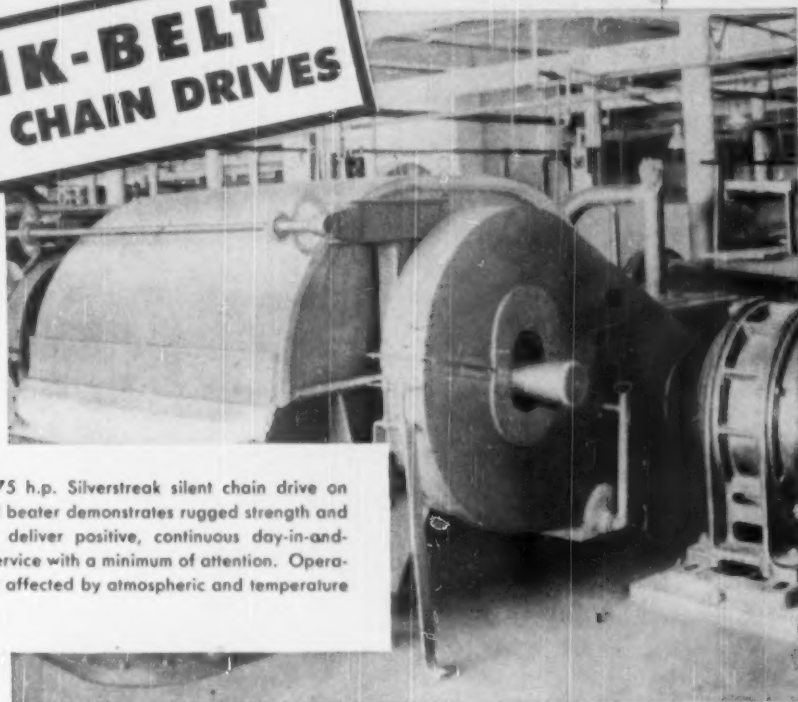
Buffalo • Boston • Charlotte • Chicago
New York • Philadelphia

BUFFALO 7, N. Y.

FD-9-60

Built to Take—or Give—a Beating

LINK-BELT SILENT CHAIN DRIVES



Link-Belt 75 h.p. Silverstreak silent chain drive on paper mill beater demonstrates rugged strength and ability to deliver positive, continuous day-in-and-day-out service with a minimum of attention. Operation is not affected by atmospheric and temperature changes.

RUGGED

Link-Belt Silverstreak silent chain drives combine ability to carry heavy overloads with the resilience that sustains and absorbs shock.

DEPENDABLE

Silverstreak silent chain drives cost practically nothing for upkeep—run 10, 20, or more years without attention beyond occasional oiling.

COMPACT

Operating efficiently on short centers, they save valuable space. Ratios as high as 10 to 1 are commonly used.

EFFICIENT

98.2% efficiency maintained throughout the life of the drive.

POSITIVE

As the chain, in the form of a flexible rack, meshes with the teeth of the sprocket, the drive cannot slip.

PRE-SELECTED STOCK DRIVES

Chains and sprockets for drives from $\frac{1}{2}$ to 50 h.p. are available from stock at Link-Belt distributors and factory branch stores in all principal cities.



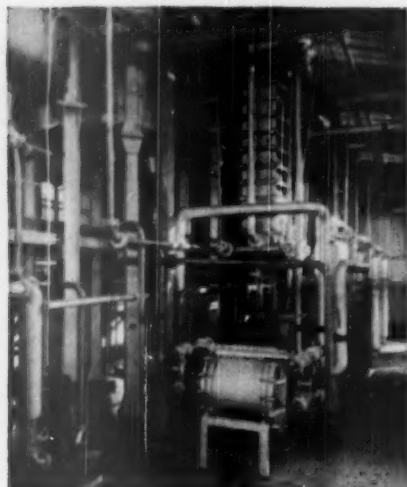
For increased power transmission efficiency, specify Link-Belt Silverstreak silent chain drives.

LINK-BELT COMPANY PACIFIC DIVISION

Plants and Factory Branch Stores at San Francisco 24, Los Angeles 33, Seattle 4,
Offices and Factory Branch Stores at Portland 9, Spokane 13, Oakland 7.

12-108-P

LINK-BELT
Silverstreak
SILENT CHAIN DRIVES



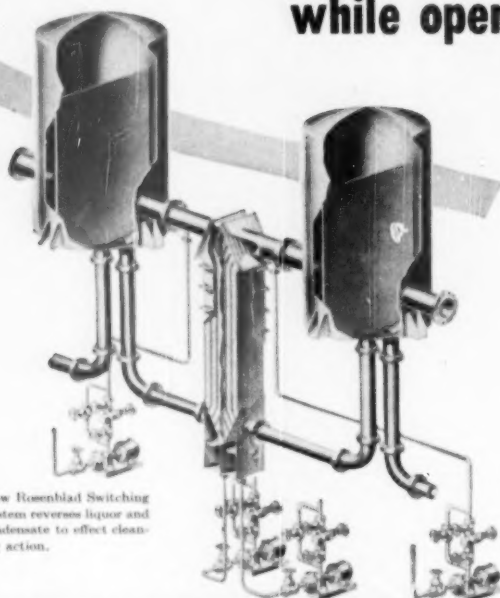
Evaporator installation
with Rosenblad* Channel
Switching System.

*Patents Applied For

an
important
advancement

**REVOLUTIONARY ROSENBLAD
SWITCHING SYSTEM ELIMINATES
HIGH COST OF REMOVING SCALE**

new Conkey Evaporators de-scale while operating at full capacity



How Rosenblad Switching
System reverses liquor and
condensate to effect clean-
ing action.

Scale—bugaboo of many a paper mill—can now be conquered, simply and economically. By using the new Conkey Flat Plate Heating Surface Evaporators with the Rosenblad* Channel Switching System, surfaces subjected to boiling liquor are periodically *switched* with those in contact with vapor and condensate—thus cleaning the heating surface thoroughly, during normal continuous evaporator operation.

Self-Cleansing switching design not only reverses liquor and steam side of heating element: *all* parts of equipment are switched, washing away scale with condensate from pipe lines, valves, vessels—in addition to heating surface. And there is no interruption of the evaporation cycle. System has been thoroughly tested and proved by installations in Scandinavia.

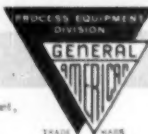
Write for Bulletin R-1

GENERAL AMERICAN TRANSPORTATION CORPORATION

PROCESS EQUIPMENT DIVISION

Sales Offices: 10 East 40th Street,
New York 17, New York

General Offices: 135 South LaSalle Street,
Chicago 90, Illinois



Sole licensee in the U. S. A. for the A. B. Rosenblads
Patented Evaporator Switching System.

OFFICES IN PRINCIPAL CITIES

Other General American Equipment: Turbo-Mixers, Evaporators, Thickeners, Dewaterers, Dryers, Towers, Tanks, Bins, Kilns, Pressure Vessels

SIZE IS NOT IMPORTANT

The Roaring River Hydroelectric Development designed and constructed for Jamaica Public Service Company Ltd., Jamaica, B.W.I. Water is diverted from springs at the source of Roaring River through a pipe line to a single unit turbogenerator plant where it is converted into 4,500 kva of electric power.

Our work includes engineering and construction for varying projects, large and small. Each receives the same technical skill and attention. Our broad experience is available to all branches of industry.

This Service Building for Alexandria and Arlington Area, designed and constructed for Virginia Electric and Power Company, houses offices for outside departments and general storerooms.

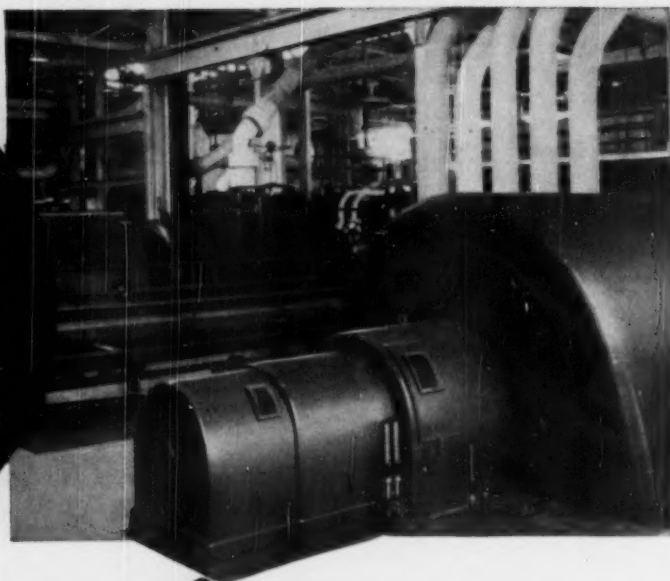
Manufacturing Building at Watertown, Massachusetts designed and constructed for The Prudential Insurance Company for occupancy by Manning, Maxwell & Moore, Inc. The total floor area is 136,000 sq. ft.



STONE & WEBSTER ENGINEERING CORPORATION

A SUBSIDIARY OF STONE & WEBSTER, INC.

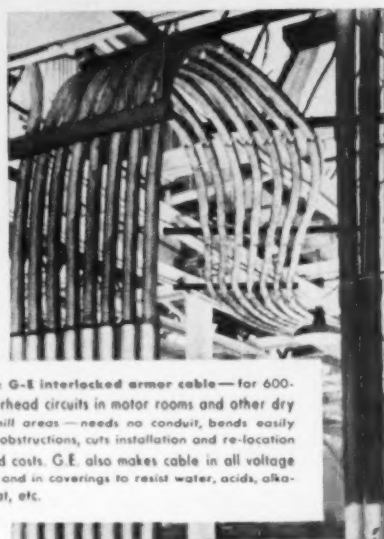
**HERE'S
EQUIPMENT
RELIABILITY**



For Continuous



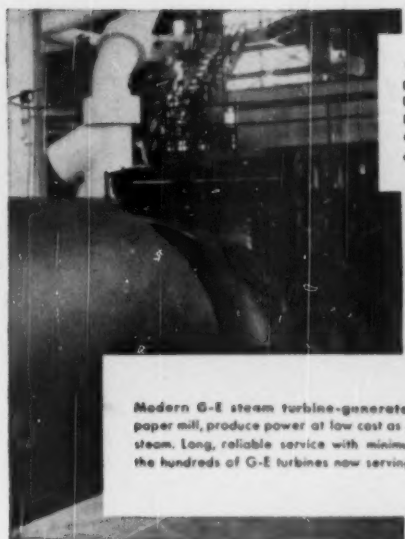
Factory-assembled G-E Metal-clad switchgear costs less installed than field-assembled equipment, protects paper-mill equipment, and provides space-saving compactness for expansion in existing buildings. Note the neat appearance of this typical 4-kv installation in a Washington paper mill.



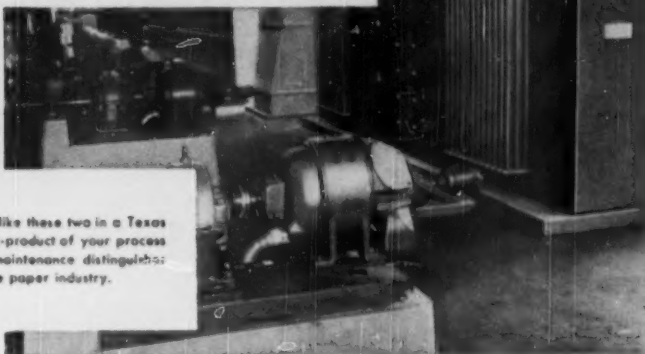
Flexible G-E interlocked armor cable — for 600-volt overhead circuits in motor rooms and other dry paper-mill areas — needs no conduit, bends easily around obstructions, cuts installation and re-location time and costs. G.E. also makes cable in all voltage ratings, and in coverings to resist water, acids, alkalis, heat, etc.

GENERAL  **ELECTRIC**

655-A



Standardized G-E unit substations in a load-center power distribution system, like these two in an Ohio box-board mill, give you the lowest-cost method of supplying low-voltage paper-mill power. These individual, compact G-E "packages" provide flexibility for growth and boost operating efficiency with full voltage of the motors.



Modern G-E steam turbine-generators, like these two in a Texas paper mill, produce power at low cost as a by-product of your process steam. Long, reliable service with minimum maintenance distinguishes the hundreds of G-E turbines now serving the paper industry.

Paper Production!

G-E power generation and distribution equipment—plus skilled application engineering assistance—gives you high service continuity, flexibility for expansion, lowest over-all cost!

As vital to continuous, high tonnage paper production as the efficient performance of your machines is the uninterrupted supply of power to drive them—provided by these dependable General Electric equipments.

Here are highly efficient turbines that generate power and furnish process steam at lowest over-all fuel cost—centralized Metal-clad switchgear that provides incoming-line and high-voltage feeder protection—and "building-block" load-center unit substations that cut power-system costs while permitting future expansion.

In addition, General Electric system-engineering takes advantage of every applicable technique . . . such as neutral grounding, simplified circuit arrangement, and combination of light and power circuits . . . to give you a better, lower-cost electrical system.

They all add up to power-system reliability—for continuous, profitable paper-making—when engineered to your individual needs by experienced G-E paper-mill specialists. For assistance in your mill modernization or expansion program, call in your G-E representative early. Apparatus Dept., General Electric Company, Schenectady 5, N. Y.



**Co-ordinated
Equipment
FOR
PAPER MILLS**

Have you seen "Modern Industrial Power Distribution," a G-E "More Power to America" color sound slidefilm? Ask your nearest Power Supplier, or G-E office to arrange a showing for your organization.

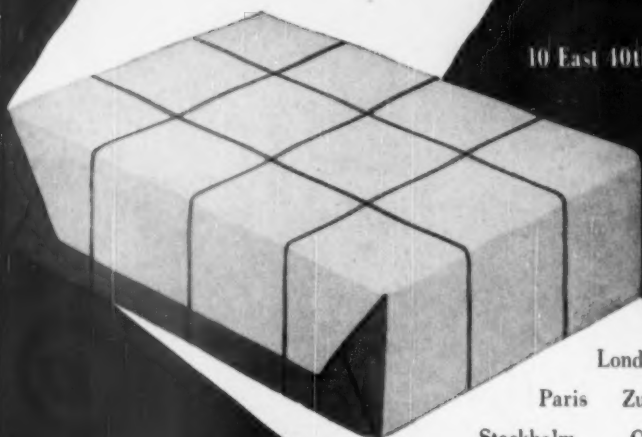
Lyddon & Co.

exporters of
wood pulp to all
world markets

Parsons & Whittemore

paper exporters
wood pulp

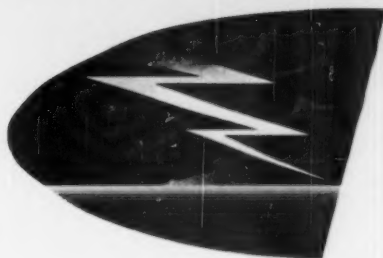
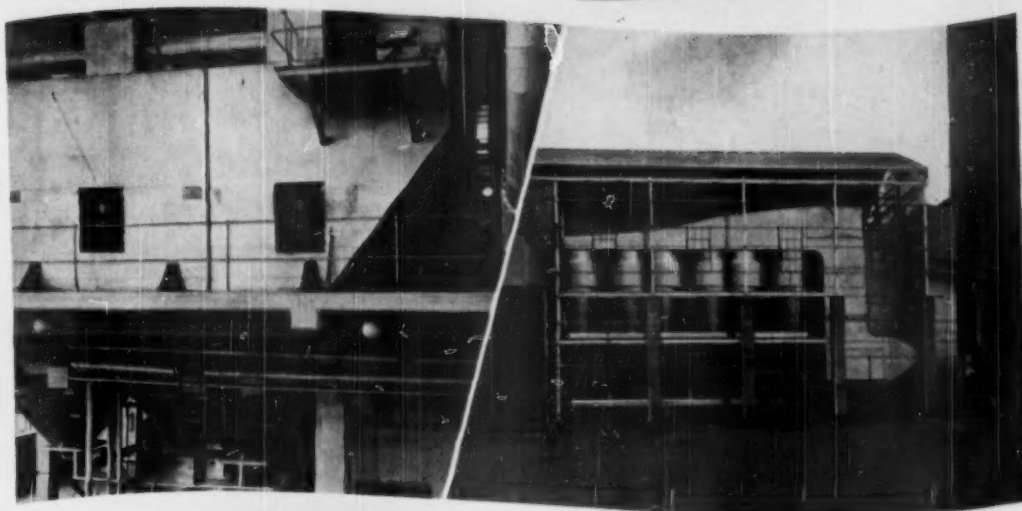
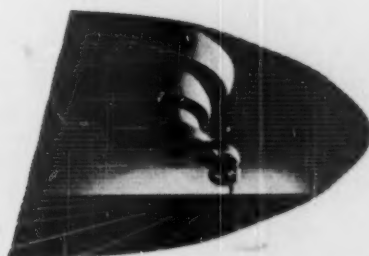
10 East 40th Street, New York 16, N. Y.



London
Paris Zurich
Stockholm Oslo
Sousse Montreal
Buenos Aires
Sao Paulo



**fines
fumes
and 'ficiencies**



IN DUST RECOVERY

The advent of the Buell 'SF' Electric Precipitator, as a running mate with Buell's far-famed van Tongeren Cyclones, is significant. It moves Buell into a forefront position for consultation on dust collection...

**whatever the nature or fineness
of the material to be recovered.**

Buell-certified performance, on either type of equipment, or both in tandem, will be in terms of fractional efficiencies for the various classifications of micro-fines handled. The data will be factual, conservative—and demonstrably accurate.

In building the Buell 'SF' Precipitator for ultra-fine dusts, fumes and vapors, modern-design refinements—such as StediFlow dust-fall—have been incorporated. Experienced plant engineers in particular will want to be informed about these innovations. Both 'SF' Precipitator and van Tongeren Cyclones are peak-efficiency-rating devices worthy of the Buell name and our customers' confidence.

Inquiries are invited. Write us your specific problem, or for a copy of our book on recovering valuable or nuisance dusts. Buell Engineering Company, 70 Pine Street, Suite 5027, New York 5, N. Y.

buell

Engineered Efficiency in Dust Collection

POWELL RIVER

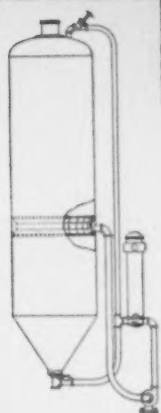
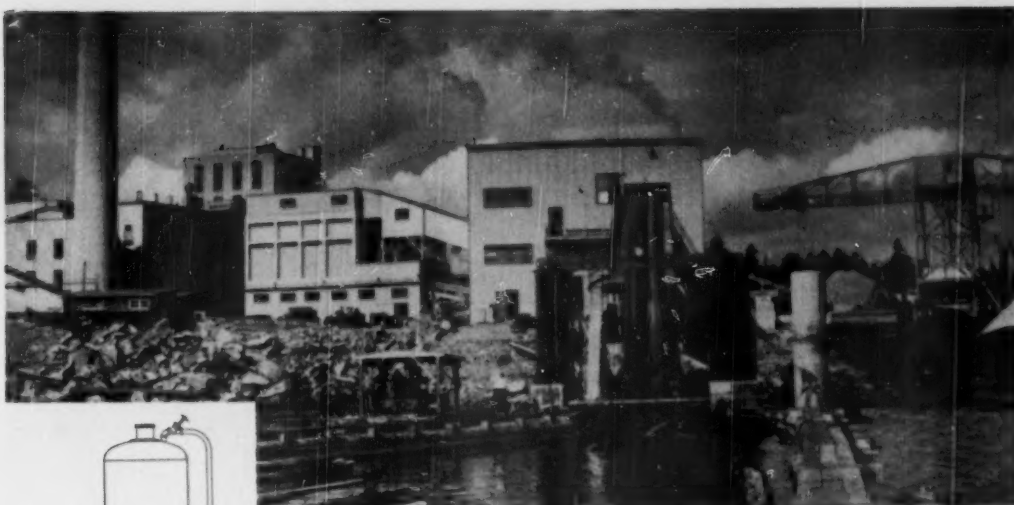
UNBLEACHED
SULPHITE PULP



STRENGTH
COLOR
SERVICE
DEPENDABLE
SUPPLY

**POWELL RIVER
SALES COMPANY
LIMITED**

— 308 STANDARD BUILDING — VANCOUVER, B. C. —



With ESCO circulation, heated liquor is forced evenly throughout the digester, cooking all the contents uniformly with undiluted liquor. No "hang-ups".

Ask For Information

An ESCO circulating system, engineered to fit the operating conditions of your pulp mill should be equally effective. Ask your nearest ESCO representative for details, or fill in and mail the coupon for catalog 168 which gives detailed information. No charge, of course.

ESCO

ELECTRIC STEEL FOUNDRY

Stainless and
High Alloy Steels

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IN CANADA — ESCO LIMITED, VANCOUVER, B. C.

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...at MacMillan Export Company

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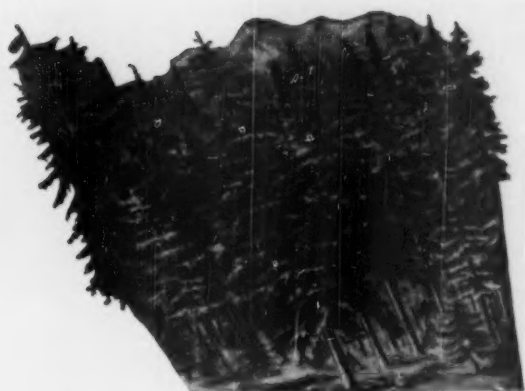
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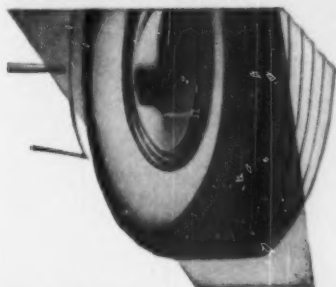
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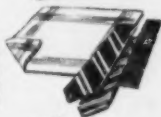
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MACMILLAN EXPORT COMPANY

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The initiation of pulp manufacture by the MacMillan Export Company, Pulp Division, marked a significant step in the more effective overall use of British Columbia forests. This fine modern mill, located near Nanaimo on Vancouver Island, will use as raw material the large volume of waste woods of the various MacMillan lumber and plywood mills and logging camps.

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B-419

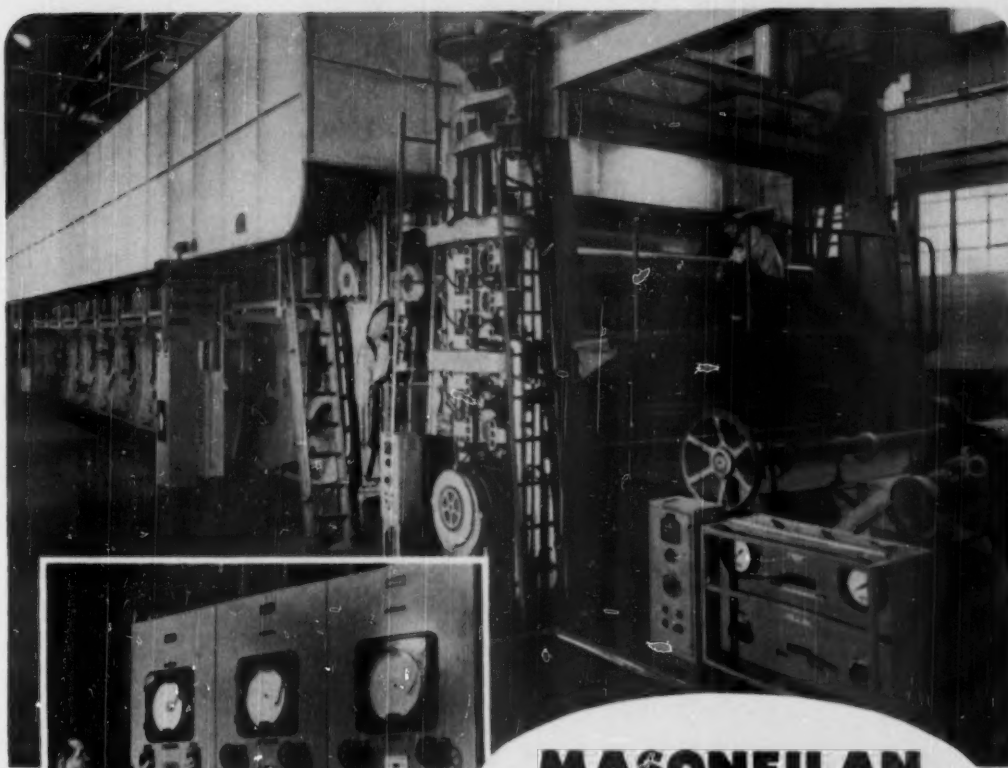


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Masoneilan Exact-A-Load installation in
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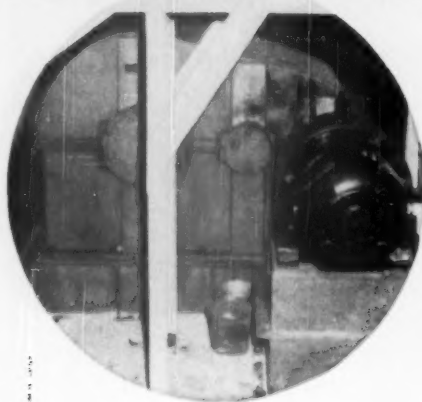
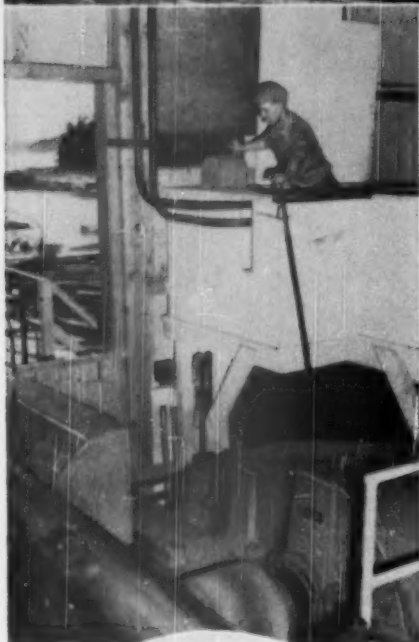
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Log-haul and wood room are seen in above view of H. R. MacMillan Export Company Pulp Division's new sulphate mill at Nanaimo, B. C. Photograph at right shows logs being carried up from pond below.



Two speed log-haul drive uses a Pacific-Western DT-62 right angle triple reduction speed reducer (illustrated above) driven at 1200 r.p.m. by a 75 h.p. electric motor. To change drive from low to high speed, operator merely shifts hand lever connected to speed reducer.

LARGE

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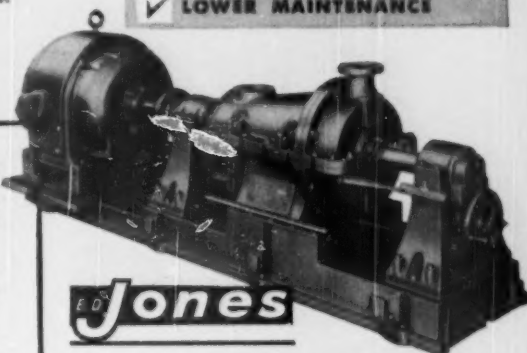
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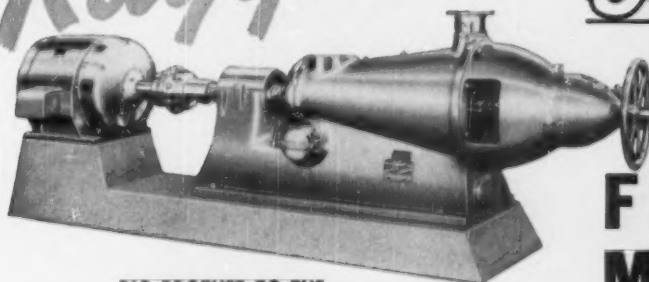
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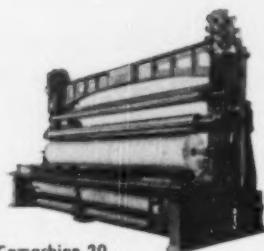
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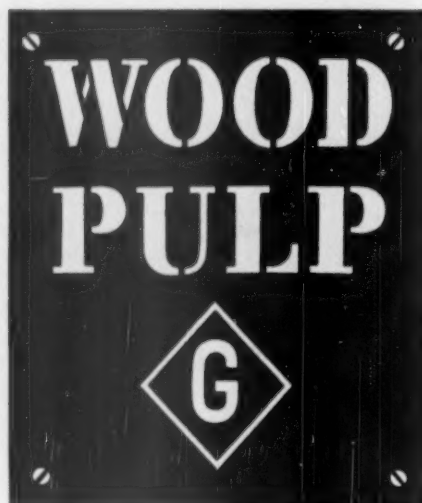
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Publishing Office—71 Columbia St. (4); MA 1626

Other Offices—534 SW Third Ave., Portland 4, Ore. 121 Second St., San Francisco 5

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Six Answers—All Can't be Right, Or Can They?

Four sulfite pulp mills on the Fox River have only until the end of this year to submit plans for abating flow of their waste liquor in the river, according to a mandatory Wisconsin state ruling.

While the war may force an extension of such orders, not only in Wisconsin, but in other states, they were still standing (precariously) as we went to press.

The mills have been trying to solve the problem of pollution by reducing flow to the rivers, even with an increased cost in manufacture of products. At the same time they are hopeful of obtaining commercial uses for the effluent to help defray expenses as a secondary goal.

If they had to act right now, it is very probable that one mill would put in a yeast plant; another would put in a Rosenblad-Conkey evaporation plus burning system; a third would simply cease operations. One of the four already has reduced its operations, eliminating many jobs, to achieve a 40 percent effluent reduction required by the state.

There you have four different answers—at least three different answers if you want to consider the last two as similar. These are the facts, ascertained by PULP & PAPER on a recent tour of the valley.

Isn't that proof—if there ever was proof required—that the haste in which many mills may be forced to make their decision in Wisconsin, as well as in other states, could be very costly? Some answers could be 100 percent wrong and 100 percent disastrous.

Certainly it is doubtful that all "answers" are right. Or, at least, they can't all be the best answers from every economic angle, and from the very vital angles of preserving the incomes and the jobs for the communities in which these mills are situated.

And when you look to the state of Washington and the state of Oregon, with their commercial magnesia base recovery system and their experimental ammonia base recovery plant now going into operation, you have two more "answers." Maybe a few different answers may be correct for mills operating under different conditions, but all the "answers" can't prove equally successful.

One thing about it all is positive—and the state authorities who are disregarding the facts of known research and science—can sew this statement in their hats and maybe take a look at it a few years hence.

If the pressure on the mills is carried to the point of forcing action on what is known today, one or more mills are very likely to make some unhappy and costly mistakes.

And here are some other facts that cannot be successfully challenged, and it seems a shame the public doesn't know more about them:

1. At no time during the 84-year history of the sulfite process, has more concerted, serious effort been put forth or greater amounts of money expended looking toward the abatement of sulfite stream pollution than in the past ten years—especially the past five years. Just an example—\$350,000 donated to the University of Washington for research by Washington state mills. And—

2. No industry, with the possible exception of oil, has done and is doing more research with a view to bringing about the most complete economic utilization of our natural resources than the pulp and paper industry.

In the fast-developing stream crisis over the country, this is certainly no time for "bluffing"—either by the industry on one side, or the federal or state agencies on the other.

We can say truthfully that not a single responsible mill involved in this crisis is in any mood to "bluff" and every single one is deadly serious about trying to find a reasonable answer.

Time To Talk Tough?

When a U. S. industry gets to a certain size and degree of vitality it seems nowadays to fall within attack of government. Steel has long been in the ring, and steel men have become as sinewy as their product and talk back tough, if occasion demands.

As suggested by Washington news on a following page, it looks as if government has discovered that this industry is big and vital. It has been a quiet industry, its leaders usually reticent and quiet men. But mayhap the time has come for stronger retorts. As noted in this issue, Mr. J. D. Zellerbach made one in bluntly stating that the long series of government investigations is one of the deterrents to newsprint production.

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GREAT NORTHERN CO.

INCREASES OUTPUT 40,000 TONS YEARLY



FIRST-PUBLISHED AIR VIEW of smooth-running East Millinocket, Maine, newsprint mill of Great Northern Paper Co. Comprised of groundwood pulp mill and four 158-in. machines with auxiliary equipment. Note pulpwood booms at upper left. Smoke rising in distance is from GN's much larger Millinocket mill, shown on our cover page. It is ten miles distant in this picture. Improvements at larger mill described in this article.

"The company has always endeavored to follow a program of conservative expansion," testified Albin R. Caspar, vice president and sales manager of Great Northern Paper Co., at the recent Congressional hearings on newsprint.

That was a typically quiet statement from Great Northern, venerable U. S. manufacturer of newsprint and one of the few to have withstood the various assaults (some by no means general to all industries) that have occurred since 1899. Its founder, the late Garrett Schenck, a man of single purpose and consistency, had what seemed to many industry men a fanatical devotion to newsprint.

Because Great Northern is modest about its problems and equally quiet about its new machine installations, not everyone notes that in the past ten years it has replaced five old machines, running since 1900, increasing its newsprint net production by 40,000 tons a year.

Having just completed in 1949 the major phases of its machine replacement, conservative Great Northern might not have publicly mentioned just now its further plans had not the newsprint hearing requested comment on expansion costs in relation to supply. In relating their whole program, Mr. Caspar stated it was planned to spend an additional \$6,000,000 in modernization of its newsprint mills. However, he added a qualification so necessary these days that "whether or not these plans can be completed, depends to a large extent on adequate earnings." Another qualification was injected by events when the Korean campaign and world situation

did not appear as serious as they later did. Nevertheless, several sources outside the company felt the plan far enough along for completion regardless of mobilization.

The spirit of the founder seems to stick, for although the Madison mill makes groundwood specialties and sulfite wrapping, the major mills at East Millinocket and Millinocket (our cover picture) are today on newsprint exclusively, except for a cylinder machine at the latter, which makes wrapping, mainly for newsprint rolls.

These three mills, tucked in the north woods of Maine, have seen the U. S. newsprint industry rise to great heights, followed by its almost total eclipse, particularly referring to New England and New York state. They watched the rise of the industry just over the border in Canada, in western states, in the South.

But as Great Northern saw all this, there was very little notice taken from mills or men along the Penobscot. All that came from them was newsprint. Great Northern withstood these events and a few waves in the market or even newsprint at \$160 and up toward the end of the Forties. Indeed, as Mr. Caspar testified in Washington, the company has attempted to follow a price policy which will serve it well in the long run, in a market area containing all but five states east of the Mississippi. It went along, "serving well" the growth of great and small newspapers, attending their births and sometimes their demise.

Like his predecessors, William O. Mc-



ROY V. WELDON fills new position of Vice President in charge of Engineering and Research for Great Northern Paper Co. He has been with GN 28 years, serving in recent years as Asst. Chief Engineer and Construction Engineer, and for past five years as Asst. Mgr., Spruce Wood Dept. He lives in Orono, Me., will make headquarters in Bangor, Me. He's native of Somerville, Mass., and graduate of Tufts.

Kay, president, reflects the company's lack of anxiety to see its newsprint inked with its accomplishments, even when they are worth recording. And it is in character that Mr. Caspar's testimony at the hearing was plain, open, but organized for brevity.

The company's survival in its own industry after 51 years, today employing steadily about 2,300 and able to furnish about 530,000 man-days of seasonal employment in the woods, is not only a feat, but of value beyond economics, in an area where jobs have never been plentiful in comparison with other states.

The value of such a far-seeing institution to a region which has passed through the country's entire series of 20th century shocks is apparent to any reader. Great Northern reflects a hardy quality and is equipped to go on serving between 125 and 150 newspapers on contract, probably as many small papers and newsprint distributors, or as the government may direct.

Great Northern hasn't considered it relevant to publicize modernization, but has announced the creation of an entirely new position called "vice president in charge of engineering," Roy V. Weldon to the post, as announced recently by William O. McKay, president. The new position is unlikely to indicate a departure from "conservative expansion," but it shows the same regard for long and consistent experience, for it rarely employs outside people for honored jobs. Many in the offices at Boston and Bangor and New York were in the mills at Millinocket years ago.

Great Northern's way is illustrated also in its woods operation, probably not as highly mechanized as perhaps some New England operations. But its wood costs are sufficiently low for these days, and it is steadily making labor relations studies. In such a vital long range matter as forestry, Great Northern was far ahead

(Continued on Page 86)

NEWS IN BRIEF • • • AND BULLETINS

Thilmany To Add Big Machine, Power and Washers

Thilmany Pulp & Paper Co., Kaukauna, Wis., through C. R. Seaborne, executive v. p., announces plans for new \$1,000,000 glassine Fourdrinier machine, replacing two old ones; to make two-thirds more glassine than both of them. Will expand No. 9 machine building, add storage space; build auxiliary power plant for new 6,000 kw turbine; add 3 continuous washing filters, 200 tons capacity; rebuild wood room, with new 12 x 45 ft. barking drum, 88-in. chipper, chip screens, 50 x 300 ft. concrete "hot pond" for pre-treatment of wood. Digesters being re-lined and another new saveall has been added in \$250,000 saveall investment for all kraft machines. Mill No. 1 will become entirely converting with new 4-color press, new embosser, new wax laminator, etc. added . . .

\$2 1/2 Millions Spent on Mobile Mill

Total of \$2,571,026 spent during first half of 1950 on current expansion program at Mobile, Ala., mill of Hollingsworth & Whitney Co. We published previous announcement of 50% expansion at this mill. Nearly \$400,000 more spent during first half of year on H & W Maine mills, according to President James L. Madden . . .

Sonoco Will Build in Mexico

Sonoco Products Co., of Hartsville, S. C., with U. S. and Canadian plants for tubular and paper specialties and semichemical pulp, plans to build a small plant in Mexico. James L. Coker, president, back from Mexico, said the location, cost and other details will be announced later . . .

Longview Fibre Orders Moore & White Machine

Longview Fibre Co., Longview, Wash., through R. S. Wertheimer, v. p. and resident manager, announces contract with Moore & White Co., Philadelphia, for 144-inch Fourdrinier machine, 200 tons capacity, to make kraft wrapping and container board. Will be Longfibre's 6th machine—to start up Apr. 1, 1951 (part already built). To build three new plant buildings—stock preparation, machine building, warehouse. One of two Babcock & Wilcox boilers to be modified, so both burn either oil or hogged fuel . . .

Finch, Pruyn Orders Pusey & Jones Machine

Finch, Pruyn & Co., Inc., Lyman Beeman, president, has ordered new Pusey & Jones high speed 110-in. trim Fourdrinier machine. Will replace No. 1 machine in this 3-Fourdrinier machine mill and increase capacity over present 150 tons per day of groundwood printing and converting papers . . .

Port Arthur and Sturgeon Falls Additions

President D. W. Ambridge of Abitibi Power & Paper Co. reports construction of hardboard plant at Sturgeon Falls, Ont., is well under way, to be in production early in 1951. Installation of machine-coating equipment on second machine at Port Arthur mill of subsidiary Provincial Paper, Ltd., is complete and in operation . . .

Newsprint a Shadow Cast Before?

Celler newsprint hearing in Washington (see story this issue) may have been used to try to develop leads for Federal Trade Commission investigation of 13 paper industry associations for alleged price fixing in violation of FTC Act. FTC apparently going ahead with hearing within six months or less, despite war and mobilization emergency; may have suggested questions to Celler committee. FTC wants to go back to 1933—pulp and paper groups want inquiry kept in recent years to save time and money . . .

Foreign Pulp Imports Rise to Meet Demand

With domestic mills at top strain, foreign pulp imports are gradually rising to fill demands. Sharp rises were noted. Bleached sulfite was 143,065 tons for six months 1950 as compared with a year total of 241,527 in 1949, in paper grades; and 107,444 in non-paper grades as against 149,801 for last year. Out of the total of 784,804 tons to July 1st some 1950-6 mos. imports (with 1949 year in parentheses) are: unbleached sulfite 147,602 (256,993); bleached sulfate 187,749 (323,212) unbleached sulfate 65,818 (117,917); bleached groundwood 109,598 (189,266) . . .

Alaska Mill Plans Explained

Ketchikan Pulp & Paper Co. (Puget Sound Pulp & Timber Co. and American Viscose) now have until Aug. 2, 1951 to qualify under Forest Service timber contract for final award of timber for proposed dissolving pulp mill at Ward's Cove, near Ketchikan, Alaska. To finally qualify, company must submit plans, order equipment and give concrete evidence construction is going ahead. About a half million invested to date. Contrary to Forest Service announcement, MgO sulfite recovery plant at Longview, Wash., (Weyerhaeuser) is making good progress, but fact that it is not yet developed to ultimate capacity was one of reasons Ketchikan firm gave in asking for extension . . .

Sonic Waves for Beating?

Use of ultrasonic sound waves in this industry likely to be held up in research and application by mobilization, but of interest are tests on new application. Now two companies in Boston doing sonic research in this industry, and more recent tests apply sonic waves to beating and refining of pulp stock and fibre processing . . .

Praises Coosa River Mill's Cleanliness

Resident Manager Leo F. Ziel of the Fort Townsend, Wash., division of Crown Zellerbach Corp., stopped off at Beloit, Wis., after a Southern tour recently to discuss plans with Beloit Iron Works officials regarding new equipment for the No. 2 machine at Port Townsend.

He praised the outstanding cleanliness of the Coosa River Newsprint Co., kraft pulp and newsprint mill, built and managed by Kimberly-Clark Corp. at Coosa River, Ala., which Mr. Ziel described as having one of the cleanest paper mills he had ever seen. He also spoke highly of improvements at Crossett Paper Mills, Crossett, Ark., which has a high speed machine for making lightweight kraft.

Exclusive complete descriptions were published in recent issues of PULP & PAPER (Crossett in May, 1950; Coosa River in March, 1950 issues).

Dissolving Pulp Prices Up

Rayon Organon reports dissolving wood pulp prices increased 5 1/2% to 8% in August, bringing regular tenacity viscoscose type pulp back to the June 1949 level, but other pulps went higher. Regular tenacity viscoscose rose from \$150 to \$159 per ton; high tenacity viscoscose from \$161 to \$170 and acetate and cuprammonium types from \$171 to \$185.

High Rate of Production

The American Paper and Pulp Association reports the ratio of U. S. paper production to mill capacity for the week ending last July 22 was 101.7%, compared with 82.7% for the corresponding week a year ago and 99.1% for the week ending July 15. Mills producing newsprint exclusively not included. Paperboard production was 95% for the same week, compared with 76% a year ago.

New Board Mill

Construction of a new wood pulp hardboard mill by Oregon Lumber Co. in Hood River county at Dee, Ore., to manufacture hardboard by a new process has begun. It will utilize up to 45% Douglas fir bark as raw product.

The plant, to operate in conjunction with the company's sawmill at Dee, will make possible intensive utilization of by-products resulting from lumber manufacturing processes.

Blaw-Knox Construction Co., Pittsburgh, Pa., is retained by Oregon Lumber Co. to construct the new plant which is expected to cost about \$2 million.

Still More Glassine Tonnage

Westfield River Paper Company, Russell, Mass., is lengthening its largest machine at the Conshohocken, Pa., mill to the extent of nine or ten dryers in a modernization program to get more tonnage on glassine and greaseproof. Paul Moore, president, told PULP & PAPER in August. This organization purchased the two Pennsylvania mills of the Glassine Paper Co. several years ago and integrated them with its Westfield mills at Russell and East Lee in Massachusetts.

INDUSTRY WAR PLANS

Wood and Manpower Problems Loom As NSRB Group's Chief Worries

For much more than a month before North Koreans broke down through the 38th parallel the pulpwood situation throughout the nation had not been in healthy inventory as related to current production of pulp and paper. In some areas the predicament was unduly emphasized by more than natural hazards; for example, in the Far West there had been the long and crippling Weyerhaeuser strike felt in mills across the nation.

Nevertheless, until at least July 4 the consensus of the industry had been that the end of 1950 would witness a decided slump in demand and therefore production. A few weeks after Korean hostilities began it was felt no such recession was going to occur. The statisticians almost literally scrapped their fourth quarter diagrams and columns. Purchasing agents groped to add to stocks. By middle July prices were bursting upward on paper in significant mills in all producing regions. A new note crept into the newsprint industry hearing in Washington where Congressman Emanuel Celler and his men went doggedly on, losing the headlines, however, to U. S. and South Korean troops flying the U. N. banner. This new note found Canadian and U. S. newsprint mills, pulp men, and publishers in a common beam that even a stubborn man like Celler could not face much longer—the necessity of the North American pulp and paper industry to unite in defense.

A 26-man committee for the pulp and paper industry was awaiting approval in August to work as one of the Business Advisory Committees under the U. S. Department of Commerce to carry out the terms of the Defense Production Bill. Names cannot be announced until full approval and subject to the passage of Defense Bill, but it is built around the nucleus of the Pulp and Paper Industry Council to the Department of Commerce in existence for several years.

Mylrea and Porter On the Job

Bringing to bear experience in covering the industry in Washington from 1940 to 1945, PULP & PAPER had been first to interview John Mylrea and Oliver Porter in the Old State Building as they mapped out the first and very important broad plans for the forest products section of the National Securities Resources Board, new name for the WPB of any possible third war. Though the president appeared to lose interest after the defeat of his NSRB chairman choice, ex-governor of Washington State, Mon C. Wallgren, and NSRB suffered from neglect and apathy, Mr. Mylrea and Mr. Porter—aided by veterans of the industry's WPB



MATHIAS NIEWENHAUS (left), who heads Forest Products division of National Security Resources Board, and OLIVER S. PORTER (right) ex-Secretary of U. S. Pulp Producers, who has come out of retirement to work on pulp and paper war plans in Washington.

of World War II—kept hacking away at the nebulous but insistent problem.

This was tradition and experience, for few industries last war sent generally such able men to Washington; few showed such splendid results or, well into the war, fought so hard to reach them. Because the government was very late indeed in recognizing the vital part played by pulp and paper in all-out war. Last year so-called "task forces", as reported in these pages, were meeting regularly in Washington, determined on no delay should war strike again. This year, long before Korea, it was decided to meet more regularly starting with September.

By now the "task forces" had given way to the nucleus, active and inactive, of the NSRB, Forest Products, under the head of Mathias Niewenhaus, prominent forest products executive, and were intact in a pulp and paper section of their own under him. Not all "task force" veterans of old WPB were in the new body; some were; some might yet be called. But NSRB operates largely top secret in the strict military sense. Even names of present pulp and paper members can be kept dark for now; a veteran may tell you freely he has not been tapped again—as yet—but will not necessarily admit when he does get word. Later, of course, the knowledge grows. But this is no cops-and-robbers pose. NSRB is the logistics of industry's attack on the enemy. Specifically, paper makes campaign maps and dispatches troops and ships; paperboard makes shipping containers; pulp makes smokeless powder—in cold fact, industry as a whole does not move at all without paper and the pulp and the pulpwood.

Labor Problem

Naturally PULP & PAPER asked no WPB veteran if he'd been called; but it

could ask opinion. Allen Hyer, sales manager for Bagley & Sewall, and last war the pulp and paper machinery allocation chief, felt that this time the problem would not be so much one of production as of manpower.

This was the hammer on the nail-head, and PULP & PAPER found it echoed from woods to the dry end. Once stated, it was a simple, obvious fact. Once stated in the simple terms of gunfire, so was the division of Korea. But suddenly in July it dawned on everybody, not in panic but surely in grave concern. Production was up as far as it could go in terms of machines, hours, men, pulp supply, wood supply, the facts seemed to say. And even though new ways would undoubtedly be found to up it more, this didn't lessen the labor question.

The question was symbolized in the pulp and paper division of NSRB itself. As late as Aug. 1 it had no head to work under the Forest Products chief. Feeling was general that this man should belong to no private company; but he must know the industry; he must have brilliance, solidity, fairness, firmness. Yet at least two pulp and paper men of the few available seemed lost as candidates in the red tape of clearances and forms through no moral fault. Hope held out that one, or perhaps a third, might rise to the surface of tangled bureaucracy. Meanwhile came urgent pleas that perhaps regions should be represented, too.

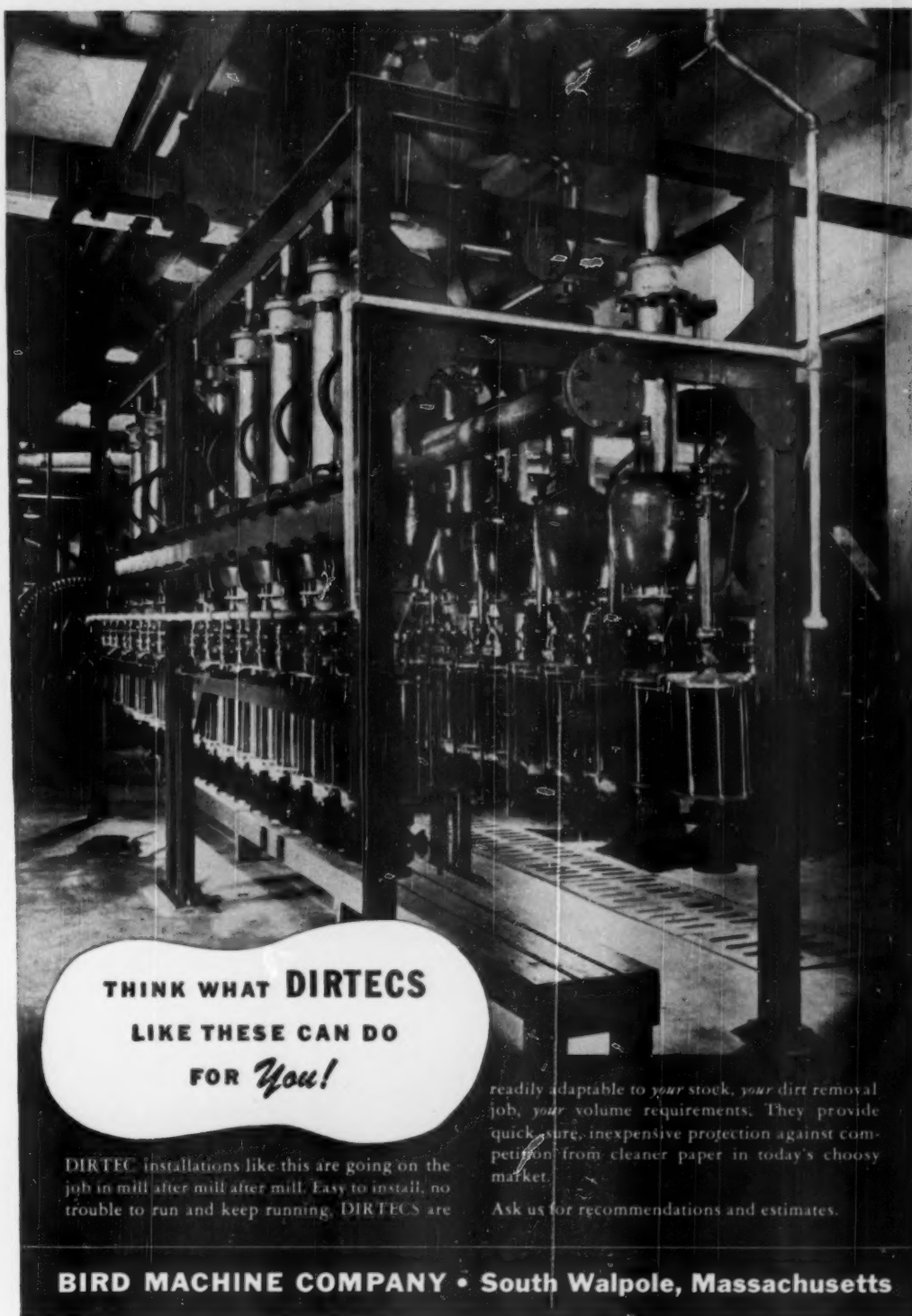
But by and large, NSRB was on the way insofar as this industry is concerned; so were Forest Products; so, in fact, was NSRB as a whole. For Chairman W. Stuart Symington was one of the men with guts enough to state his belief that this was a major war, whatever its current form. Even more to the point, so did Maj. Gen. Lewis Hershey, chief of the draft. In September, he said, exemptions would begin to drop off—age, service, dependents.

The foresight of the pulp and paper men in pressing for early NSRB action was plain in all the signs. Seeming lethargy, disunity among nations, complicating developments all over the world seemed to confirm their fears.

Commerce Dept. to Execute

One of the most important probable changes, in comparison with the last mobilization, was the apparent certainty that the Department of Commerce—and not NSRB itself—will be the "executor" of whatever enabling legislation Congress passes. Last war, it will be recalled, WPB not only planned orders, allowed under

(Continued on Page 56)



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EXPANSION IN SOUTH

Riegel Corp. Reveals Plans for Mill— Moss Point Won't Be Southern Kraft "Baby"— The Score on Other Projects in Dixieland—

With voluntary priorities already imposed and army and government requests naturally given right of way, work is being pushed at high speed on four or five new mills in the South. Several are added units to present mills.

Other "dream" mills are being shelved. International Paper Co. is pushing for a new mill, power plant and other expansion at Moss Point and in this article we report much equipment already being made.

Major equipment has been purchased for Riegel Paper Corp.'s new mill at Acme, N. C., the project recently being officially unveiled. Its chances for scheduled completion look good.

Hudson Pulp & Paper Corp.'s second complete mill at Palatka, Fla. is being hastened with balance of equipment contracts being closed about Aug. 15.

Frederick H. Dierks, president of Dierks Lumber & Coal Co., of Kansas City, Mo., told PULP & PAPER the Korean situation might affect theirs and Ozan Lumber Co.'s plans for the White Star Paper Co.—newsprint and kraft pulp—at Prescott, Ark. (he is executive vice president of the new paper company). But Merritt, Chapman & Scott of New York has the general contract and Dr. Charles H. Carpenter, formerly of New York & Penn and Southland Paper Mills, has joined White Star as top advisor.

Sincere enthusiasm of promoters for a mill at Butler, Alabama, has won respect in South but is now given very little chance in near future.

The long-discussed project at Foley, Fla., of Brooks-Scanlon lumber interests, long considered a logical move for fuller use of their wood resources, is still on the shelf.

Rumors of a possible new sugar cane pulp (bagasse) mill in the South appears to have little practical support and is crossed off now that the war momentum is increasing.

Brunswick Mill Plans

Brunswick Pulp & Paper Co., Brunswick, Ga., is spending about \$5,250,000 in further additions and improvements to its production of bleached sulfate pulp for Scott Paper Co. and The Mead Corp. which own its capital stock in equal amounts. E. J. Gaynor II, resident manager at Brunswick, told PULP & PAPER that the latest phase of their modernization will increase the daily capacity from 290 to 400 tons and reduce the per-ton

cost. The entire output will still go to Mead and Scott, he stated. The amount involved is a balance from the refinancing by two loans from a group of banks headed by J. P. Morgan Inc., as recently announced by one of the two firms owning Brunswick.

The improvements embrace considerable wood yard improvements such as extension of wood conveyors, and addition of miscellaneous wood-handling equipment, Mr. Gaynor said. But the money will be pretty generally spread throughout the operations and will purchase a Babcock & Wilcox recovery unit; a new power plant boiler; new turbine; new chip bins; four new lines of screens; four new digesters; six new washers; extensive improvements to the bleaching process, including hypochloride washer, new final washer, and extensive chlorination improvements. Also going in will be a new storage tank, consistency regulator system, and a complete revision of the primary electrical distribution system and renovations to the secondary system.

Glassine Development in South?

By the time this issue is in readers' hands it may have been decided whether a well known New England glassine paper manufacturer will make a definite move toward expansion in the South. If so, it will not be along the lines of the company's original plans which were to set up adjacent to a large newsprint operation in the Southwest. Two or three new sites were under consideration in early August.

Talk About Alabama Mill

Proposed construction of a newsprint mill at Butler in Choctaw County, Alabama, 41 miles southeast of Meridian, Miss., has created considerable interest in the locality. Such a project was discussed with the Meridian Chamber of Commerce by Paul D. Hammacher, an industrial engineer, 1650 Harvard St., N. W., Washington, D. C. Location is in and adjacent to prolific pine growing region. Water supply and disposal would qualify. It is understood that Mr. Hammacher discussed this project with newsprint committee of Southern Newspaper Publishers' Association.

Southern Kraft Expansion

Construction of a modern and new paper mill and an 80% increase of production at Moss Point, Miss., by the Southern Kraft Division of International Paper Co., is already being pushed at high speed in a race against possible higher priority war work.



So much progress had already been made by suppliers—even before Maj. John H. Friend (shown in picture), vice president of the company and head of the Southern Kraft Division, made the

announcement of the project in mid-July from his headquarters in Mobile, Ala.—there seemed every likelihood that the race would be won in record time. The company was asking for the best and latest in equipment in the speediest possible time from the suppliers.

Moss Point, one of the early scenes in development of the Southern paper industry, thus will soon take its place as one of the more important and most modern units of that industry. The new Beloit paper machine, trimming about 200 inches, will have a new type of drive designed by Beloit and potential speed up to 1,800 feet per minute. It will have capacity of 200 tons per day of milk bottle stock and bleached white kraft. Added to present capacity of 250 tons per day, this will give Moss Point an annual capacity of 150,000 tons of paper of various grades.

International, with main headquarters in New York, will boost its rank as largest paper company in the world, twice as large as any on this continent, with production of well over 3,000,000 tons in U. S. and Canada. Its widely expanded converting division from coast to coast accounts particularly for the increased need for milk containers. Major Friend, in his announcement, stressed the point that this demand has "risen considerably throughout the nation."

Southern Kraft Mills

Added tonnage will lift Moss Point out of its long-held position as the "baby" of the IP mills in the South, to be succeeded by the new Natchez, Miss., hardwood quality kraft pulp mill which started up just last May 9 and is listed for capacity of 300 tons a day. Moss Point's 450 will virtually stand off the headquarters mill, Mobile, with its rated 452 and Camden (Cullendale) Ark., with 470.

These mills, however, will not even approach the "Big Four"—Georgetown,

(Continued on Page 84)

now we're getting somewhere

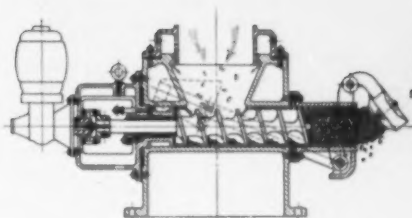
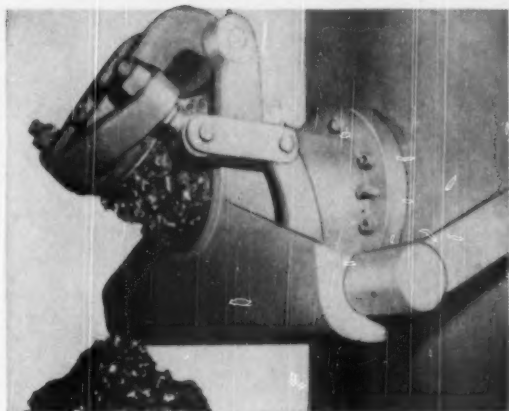
With a dirty paper stock cleaner capable of removing close to 100% of all sand, grit and other matter that's heavier than water.

With a device that will eject the rejects 60% dry and effect important water savings.

With a device that will save every little fiber except the few that may escape because they are bound to ejected clips and staples.

With a device that takes very little floor area, very little power—has only one working part, comes completely assembled and can be put to work in a matter of hours, what has any board mill left to worry about so far as stock cleaning is concerned?

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NEW MACMILLAN MILL

A COMPLETE DESCRIPTION

H. R. MacMillan, a Living Legend in Forest Industry



H. R. MacMillan Export Co., Ltd.'s consistent growth is largely the story of one man—Harvey Reginald MacMillan (in picture), who at 64 is a living legend in Canada's forest industry.

Little more than 30 years ago Mr. MacMillan established a modest office in Vancouver, B. C.'s Metropolitan building, where his company today occupies several floors. Last year sales totaled \$76,000,000, net profits \$5,700,000; number of employees, 5,000.

Yet, for Mr. MacMillan, advances have been made the hard way. Born in Toronto of parents far from well off, he was only two when his father died, and his mother went to work as a housekeeper. She was determined her son would get a good education. He matriculated from high school at 16 and at Ontario Agricultural College his record was brilliant. Then to Yale, where in 1908 he earned the degree of master of forestry.

During vacations, he worked for the Dominion Forest Service. In the Rocky Mountains one time a pack horse ran away and he was forced to return to his base through bitter weather lightly clad. As a result of exposure Mr. MacMillan spent two years in sanitariums, eventually was discharged as cured. During that period his working philosophy was formed.

Prof. H. S. Graves, his instructor at Yale, later head of the U. S. Forest Service, recommended Mr. MacMillan, then only 27, for the new position of chief forester of British Columbia. He blazed the trail for a growing department in an immensely rich forest domain, but he was not long for civil service. After touring the world on a government market survey, he saw the overseas possibilities for lumber and became assistant to Ed Palmer, then head of Victoria Lumber & Mfg. Co., whose Chemainus mill is one of the biggest in the province (under MacMillan ownership today).

Mr. MacMillan entered the industry under his own name, in 1919, after Montague Meyer, big British lumber buyer, assured him of assistance. In those days Mr. MacMillan was primarily a middle-man. He soon became a powerful figure in shipping, with scores of chartered ships. To insure adequate cargoes, he bought Alberni-Pacific Lumber Co., the extensive Rockefeller timber tract on Vancouver Island, and the old Dominion Mills where he launched Canadian White Pine Co.

He was among early manufacturers of plywood in B. C. and his plants at Port Alberni and near Vancouver produce more plywood than any other company in the British Commonwealth. He extended timber holdings and created his own ocean shipping organization, Canadian Transport Co., and negotiated an agreement with another big lumber group, B. C. Forest Products, for its management.

Forest industries are MacMillan's first concern today, but he has other interests—chairman of a fish packing company, director of banks, etc.

During World War I he helped mobilize



AN EXCLUSIVE AIR VIEW obtained by PULP & PAPER of the new Pulp Division of H. R. MacMillan Export Co., at Harmac, near Nanaimo, B. C. Note boom of logs in Northumberland Channel in front of mill.

In background is a famous portion of Gulf of Georgia Archipelago—one of world's most spectacular and scenic recreational cruising areas. Dodd's Narrows, where tides run over ten miles an hour, is at extreme upper left. Biggest international yachting race in world passed through it and in front of mill site last year.

West Coast resources in aircraft spruce, and in World War II was summoned to Ottawa as first timber controller and to head Canada's cargo ship construction.

A few weeks ago an honorary doctorate of science was conferred on Mr. MacMillan by the University of British Columbia, and in his address he said British Columbia's face should be turned towards the United States; the province must concentrate on producing for the U. S. market.

When the H. R. MacMillan Export Co. Pulp Division mill near Nanaimo, B. C., started production of unbleached sulfate pulp this summer the event marked a significant development in expansion of this aggressive, fast-growing organization.

Until then the company had concerned itself primarily with timber and logging, and the production and marketing of lumber and plywood. Initiation of pulp manufacture further integrated a program of wood utilization by a company whose dominant policy for years has been effective overall use of British Columbia forests.

It would be a mistake to infer that the 250-ton pulp mill on Vancouver Island

represents a final step in its development. Indeed, within a few months, the mill will have its bleach plant in operation. And the whole undertaking has been laid out in such a way that capacity may be doubled if such expansion is eventually considered desirable.

The H. R. MacMillan Export Co., barely 30 years old, has an almost unexampled record growth in the west coast forest industry. One of the world's great operators in this highly competitive field, the company which started in a small office in Vancouver as a merchandiser of lumber, today operates some of the largest sawmills and logging camps in British Columbia. Last year, the company's plants produced more than 325,000,000 bd. ft. of lumber, 116,000,000 sq. ft. of plywood and nearly 500,000 doors. It indirectly controlled the production and distribution of an additional 225,000,000 feet of lumber, and owns a fleet of cargo ships in international trades. Gross receipts for two years totalled more than \$155,000,000.

Logical Development

For a company such as this the \$19,000,000 pulp project at Harmac, seven miles south of Nanaimo on Northumber-

H. R. MacMILLAN EXPORT CO., LTD.—PULP DIVISION LIST OF MAJOR EQUIPMENT AND SUPPLIERS

MACHINE ROOM

S. F. Flakt Dryer	Paper Machinery Ltd., Montreal
Fourdrinier and Press	
Section	John Inglis Co. Ltd., Toronto (with Pusey & Jones, Wilmington, Del.)
Cutter and Laybay	Lamb-Grays Harbor Co., Inc., Naquiam, Wash.
Harland Sectional Drive	Bepco Canada Ltd., Montreal
Baling Press	Baldwin Locomotive Corp., Philadelphia
Scale and Automatic Sheet Weighing	Toledo Scale Co. of Canada, Windsor, Ont.
Traveling Crane	Provincial Engineering Co., Niagara Falls, Ont.
Brake Bester	Waterous Ltd., Brantford, Ontario
Vacuum and Stock Pumps	Bingham Pump Co., Vancouver, B. C., and Portland, Ore.
Motors and Controls	Canadian General Electric Co., Vancouver, B. C.
Fourdrinier Wire	Johnson Wire Works, Montreal
Blending Tank Agitation	Bingham Pump Co., Vancouver, and Portland, Ore.

BLEACH PLANT

Bleach Washers and Deckers	Sherbrooke Machineries Ltd., Sherbrooke, Que.
Bleach Flat Screens	Heaps, Waterous Ltd., New Westminster, B. C.
Bleach Mechanical Equipment	Paper Machinery Ltd., Montreal
Sulfur Burner & SO ₂ Gas System	A. H. Lundberg, Seattle, Wash.
Heat Exchanger	
(Rosenblad)	American Heat Reclaiming Corp., New York and A. H. Lundberg
Ceramics	Stebbins Engineering Corp., Seattle
Chlorine Gas Unloading System	Hooker Electrochemical Co., Tacoma, Wash.
Bleach Towers and Tanks	Dominion Bridge Co., Montreal
Pumps	Bingham Pump Co. Ltd., Vancouver, and Canadian Ingersoll-Rand Co. Ltd., Montreal

WOOD ROOM

Drives for Log Haul	Western Gear Works, Seattle
Cutoff Saw	Spear & Jackson, Vancouver, B. C., and Simonds Saw & Steel Co., Fitchburg, Mass.
Saw Controls Loaders	Sumner Iron Works, Vancouver and Everett, Wash.
Log Decks	Dominion Bridge Co., Montreal
Pumps	Bingham Pump Co., Portland, Ore.
Motor for Barker	Electric Machinery Mfg. Co., Minneapolis
Whole Log Chipper	Sumner Iron Works, Vancouver and Everett, Wash.
Motor for Chipper	Electric Machinery Mfg. Co., Minneapolis
Transformers	Pioneer Electric Co., Winnipeg and Minneapolis
Chip Conveyors	Chain Belt Co., Milwaukee
Auxiliary Chipper	Carthage Machine Co., Carthage, N. Y.
Deck Crane	Colby Steel & Manufacturing Ltd., Seattle

CHIP AND HOG FUEL STORAGE

Rotary Plate Chip Feeders	Link-Belt Co., Chicago, Ill.
Weightometer for Chips	Merrick Scale Manufacturing Co., Passaic, N. J.
Chip Conveyors	Link-Belt Co., Chicago, and Chain Belt Co., Milwaukee
Chip Conveyor Belts	Goodyear Tire & Rubber Co., and Dunlop Rubber Co., Toronto
Hog Fuel Feeders, Mechanical	Ross & Howard Iron Works, Vancouver
Hog Fuel Feeders, Structural	Dominion Bridge Co., Montreal
Hog Fuel Feeders, Gear Reducers	Dominion Engineering Works, Montreal
Chip Screws	Orville Simpson Co., Cincinnati

RECOVERY, EVAPORATOR AND BOILERHOUSE

Recovery Boiler	Combustion Engineering-Superheater Inc., Montreal and New York
Hog Fuel	
Boilers	Combustion Engineering-Superheater Inc., Montreal and New York
Dutch Ovens	Bigelow-Liptak Co., Detroit
Refractories	A. P. Green Co., Toronto
Insulation	Fiberglass Canada Ltd., and Drexel Co., Vancouver
F. D. and I. D. Fans	Canadian Sirocco Co. Ltd., Windsor, Ont.
Combustion Control	Hayes Corp., Michigan City, Mich.
Herovite Coating	Industrial Coatings, Vancouver, B. C.
Feedwater Control	Bailey Meter Co., Montreal
Fuel Oil Heating and Pumping	The Engineer Co., New York
Concrete Stack	Rust Engineering Co., Pittsburgh
Turbines	Worthington Pump Machinery, Harrison, N. J., and John Inglis Co., Toronto
Feed Pumps	Bingham Pump Co., Vancouver and Portland
Sixtuple Effect Evaporator	John Inglis Co., Toronto
Vertical Surface Condenser	John Inglis Co., Toronto
Deaerator	Permutit Co., New York, and Burnstead-Woolford, Seattle
Air Compressors	Canadian Ingersoll Rand, Montreal
Electric Precipitation	Precipitation Co. of Canada, Montreal
Motors and Controls	Canadian General Electric Co., Montreal
Air Filter Fans	Canadian Blower & Forge Co., Kitchener, Ont.

RECAUSTICIZING AND FILTER PLANT

Recausticizing System	The Dorr Co., New York and Toronto
Lime Sludge Kilo	Canadian Traylor Engineering
Refractories	General Refractories Co., and Drexel Co., Vancouver
Lime Mud Filter	Oliver United Filter Co., Oakland, Calif., and E. Long, Orillia, Ont.
Instrumentation	Faxboro Canada, Montreal
Condensate Removal System	Mason-Nellan Regulator Co., Boston

SCREEN AND DIGESTER BUILDING

Stainless Lined Digesters	John Inglis Co., Toronto
Digester Blow Valves	Yarnall-Waring Co., Philadelphia and Drexel Co., Vancouver
Digester Circulating System	Electric Steel Foundry Co., Portland, Ore. and Vancouver
Digester & Piping Insulation	Fiberglass Canada and Drexel Co., Vancouver
Instrumentation	Faxboro Co., Montreal and Faxboro, Mass.
Blow Tank	Dominion Bridge Co., Vancouver and Montreal
Brown Stock Washers and Deckers	Sherbrooke Machineries Ltd., Sherbrooke, Que.
Flat Screens	Heaps, Waterous Ltd., New Westminster, B. C.
Screen Plates	Union Screen Plate Co., Lennoxville, Que.
Washer and Decker Wires	Johnson Wire Works, Montreal, Que.
Motors and Controls	Canadian General Electric Co., Montreal
Tanks	Dominion Bridge Co. Ltd., Montreal
Pumps	Bingham Pump Co., Vancouver and Portland, Ore.
Vat Agitators	Alexander Fleck Ltd., Ottawa, and Black-Clawson Co., Hamilton, O.

MILLWATER SUPPLY

Ranney Well Installations	Signal Oil & Gas Co., Los Angeles
Deep Well Pumps	Byron-Jackson Co., Los Angeles

land Channel, was a logical step. It was also an event of significance to the whole economy of forest-wealthy British Columbia.

H. R. MacMillan, founder and chairman of the company which bears his name, had visualized an undertaking such as this for some time. It was typical of the organizing talent of Mr. MacMillan and his staff, the ingenuity and planning of Howard A. Simons, consulting engineer, and his associates, and the skill and competence of the main contractors, B. C. Bridge & Dredging Co., that operation commenced on scheduled time. This firm is contractor for two other new pulp mills in British Columbia.

It is also typical of the MacMillan company, which now employs more than 5,000 persons, that it has built a pulp mill so efficient that less than 250 employees will maintain full production. The mill is notable for many unusual features. It will be the first pulp mill on this continent to make practical use of the chlorine-dioxide bleaching process to produce a pulp of unusual whiteness. Another detail is that the Flakt dryer section is



KEY OFFICIALS IN H. R. MacMILLAN organization and in the new pulp mill operation near Nanaimo, B. C. (left to right):
B. M. HOFFMEISTER, President of H. R. MacMillan Export Co., whose career in forest industries matches his rise to a Major General in World War II as one of Canada's top overseas soldiers.
CLIFFORD CRISPIN, Manager of H. R. MacMillan Export Co. Pulp Division, who managed one of company's largest sawmills, then was manager of By-Products before present assignment.

the world's largest dimensioned and several units of equipment are unique.

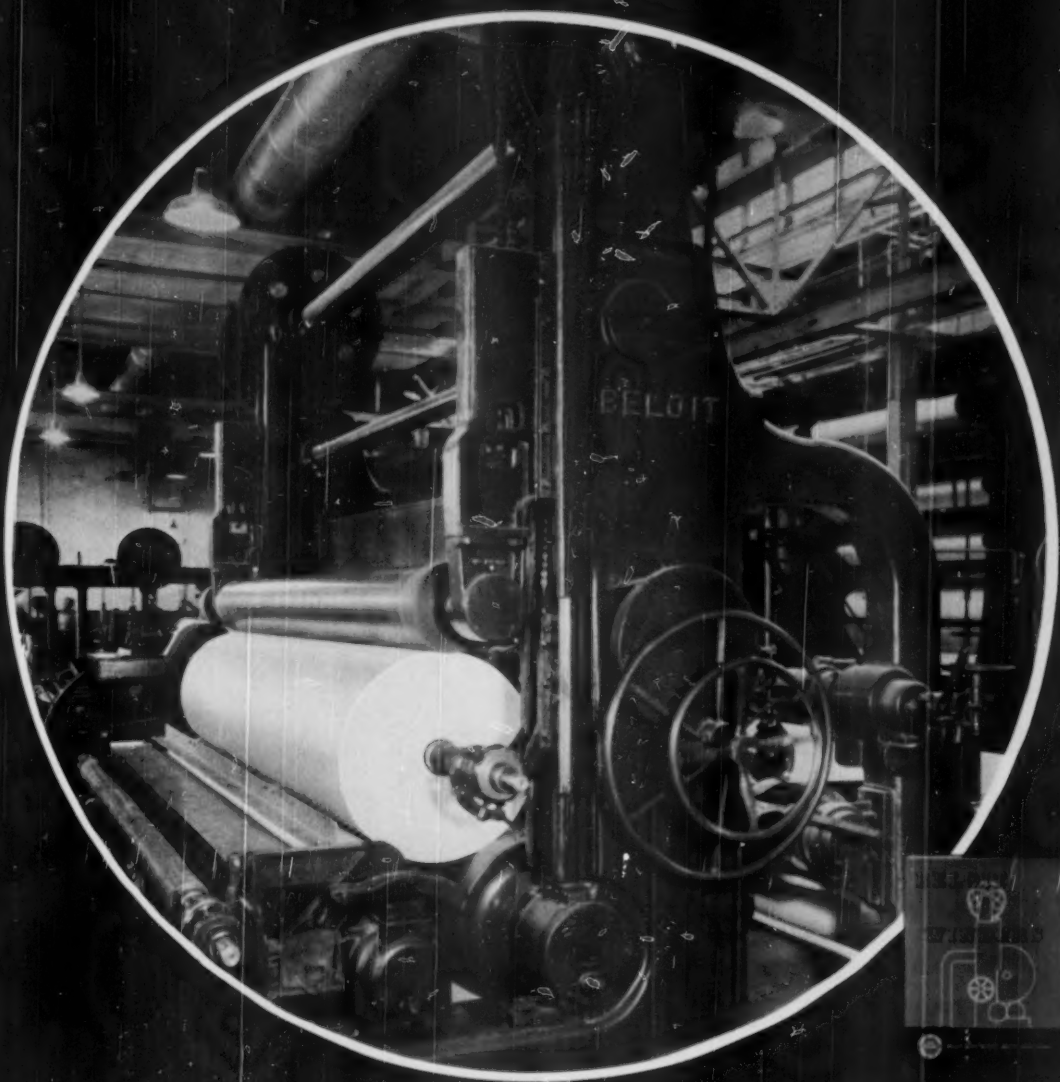
The fundamental fact that led to the building of the pulp mill was that the

various MacMillan lumber and plywood mills and logging camps were producing a large volume of by-products that could not be marketed economically—slabs, edgings, trimmings and small logs. Pulp mill supply is Douglas fir and hemlock—about 70 to 30 ratio.

Materials Handling

Most of the raw material, as well as finished products, pass over the scow wharf and car barge facilities along the waterfront adjacent to the plant. The company-owned car barge slip permits railroad cars to be loaded onto or brought ashore from the mainland ferry connecting with trans-continental rail lines.

The slip consists of two rectangular wood towers mounted on concrete piers and set some 20 feet offshore. Between the towers is suspended a 36' wide apron with wood deck, upon which is laid the railroad track. The scow wharf, where barges loaded with chips and hog fuel from the company's sawmills and raw materials of all kinds are unloaded, is 500 by 40 ft. wide. An underwater trench into which crosotted piles were driven



Send for this new
Illustrated Story of Beloit
High-Speed Winders

Straight, clean-cut edges, uniform hardness

Shear slitters on Beloit High-Speed Winders assure clean, smooth edges, and are mounted so as to be open and easily accessible. They are available with separate motor-driven bottom slitter bands or single motor-driven bottom slitter shaft. An adjustable lead-in paper roll permits

close control of tension distribution across the sheet. . . . Winder shown has belted variable drive between the drums, regulating relative drum speeds to produce correct roll hardness. Belt-driven rider roll permits hardness control at start.—*Beloit Iron Works, Beloit, Wisconsin.*



WHEN YOU BUY BELOIT...YOU BUY MORE THAN A MACHINE!

BELOIT

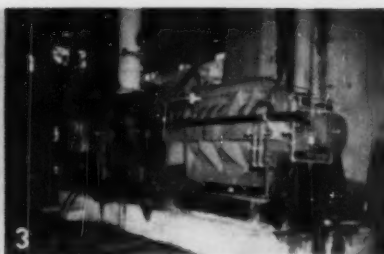
PAPER MACHINERY



EQUIPMENT SELECTED FOR NEW MacMILLAN MILL:
1—SIMONS HYDRAULIC LOG BARKER noted for simplicity, with only four moving parts.



2—ELECTRIC MACHINERY MFG. CO. of Minneapolis supplied two-pole induction motor which powers pump for hydraulic barker.



3—BINGHAM PUMP CO., of Portland, Ore., provided this pump for hydraulic barker, described in article.



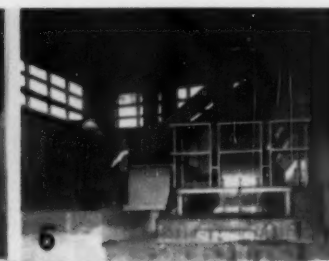
4—MODERN WOOD ROOM has all-steel reversible log haul. General construction work by B. C. BRIDGE & DREDGING CO., Vancouver, B. C.



5—WESTERN GEAR WORKS of Seattle supplied this drive to serve all-steel log haul.



6—CANADIAN SUMNER IRON WORKS supplied 153-inch whole log chipper shown here and its drive—synchronous motor supplied by ELECTRIC MACHINERY MFG. CO.



is 80 to 90 feet per minute. An unusual feature is accommodation for two small logs simultaneously. A minimum of swamping and de-limbing is required. Water is directed against the logs by means of rotating heads, and it is not necessary to turn the log.

Barked logs then pass over a second live deck to chipper feed conveyor and into the whole-log chipper, capable of handling logs up to 34 inches diameter. The disc is 153 inches in diameter, fitted with six knives. The drive is a 1500 h.p. synchronous electric motor directly connected to the chipper by a Thomas flexible coupling. Pumps and auxiliary equipment are on the lower floor.

The chips are conveyed to a surge bin which supplies chips to the screens by rotary vane feeders. Three chip screens and a re-chipper are in the chip screen room whose location along with surge bin are designed to handle chips from all sources of supply.

Chip storage facilities consist of seven concrete silos of 40 ft. inside diameter and 72 ft. high. Chips of different species are stored in separate silos to which they are conveyed by a 30-inch belt conveyor with automatic tripper. Removal from silos is effected by use of a conical steel hopper bottom and rotary plate chip feeders which distribute the chips evenly onto the conveyor, remotely controlled from the digester house. It passes over a Weightometer.

Screen and Digester Building

In the screen and digester building there are four stationary type digesters 11½ ft. in diameter and 53 ft. 11 in. in overall length, first of their kind to be installed in a Canadian mill. Of conventional shape, they are unusual in that they are of welded construction, stress relieved, and are lined with a 7/64 in. thick No. 316 stainless steel, resistance-welded by automatic machine. Each di-

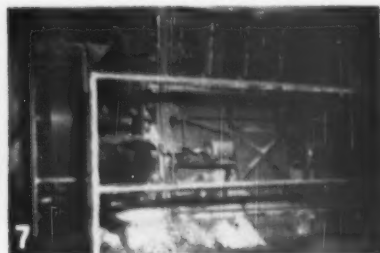
gester has its circulating system, with heater, strainer and pump capable of handling 2100 U.S. gals. per minute, equipment being stainless steel throughout.

Stock is blown to a steel blow tank, with a 26 ft. diameter by 21½ ft. cylindrical section in the center, and bottom cone of 21½ ft. length. In a 14 x 10 ft. top cylinder are connections for heat recovery.

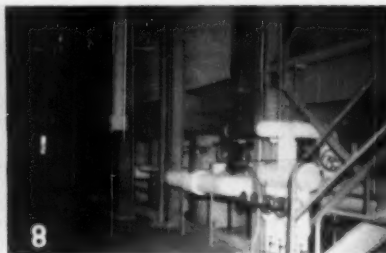
Hot gases from blow tank pass through a 48" diameter pipe and a jet condenser to a contaminated hot water tank which is vented to atmosphere. From this point the contaminated hot water passes through a filter and is then pumped through two heat exchangers. Heated fresh water is pumped to a storage tank and thence to the pulp washers, and the bleach plant.

Heat Recovery System

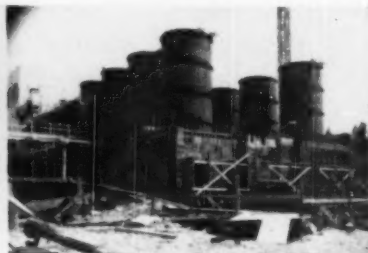
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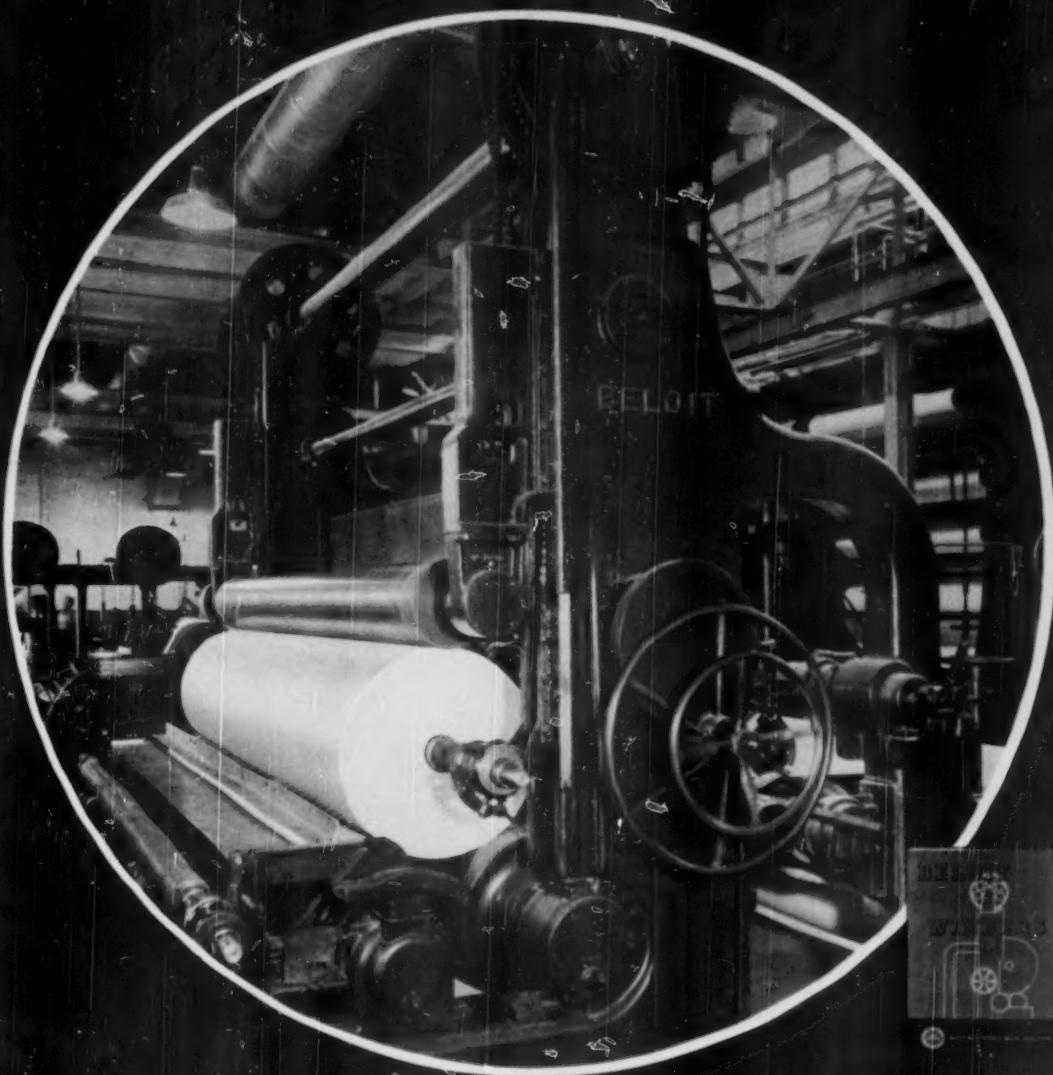
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8—JOHN INGLIS CO. of Toronto built evaporators according to James Rubush (Wenatchee, Wash.) design. Here is partial view.



9—KAMYR BLEACH TOWERS rising on site of bleach plant to be in operation about November. Kamy system represented in Canada by Paper Machinery Ltd. and in U. S. by Sandy Hill Brass & Iron Works.



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BELOIT

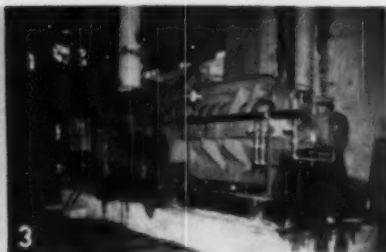
PAPER MACHINERY



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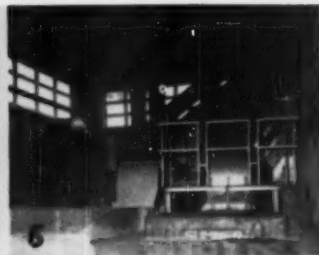
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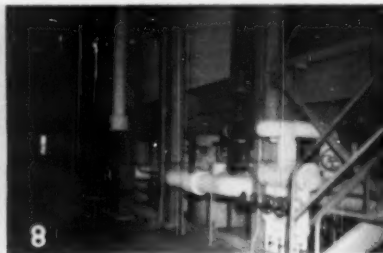
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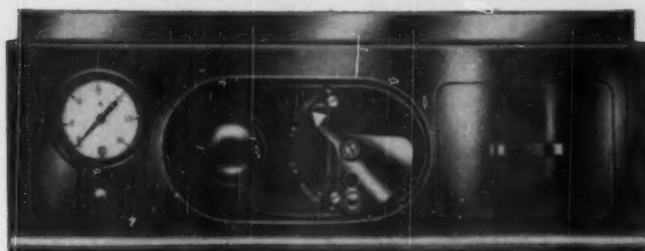
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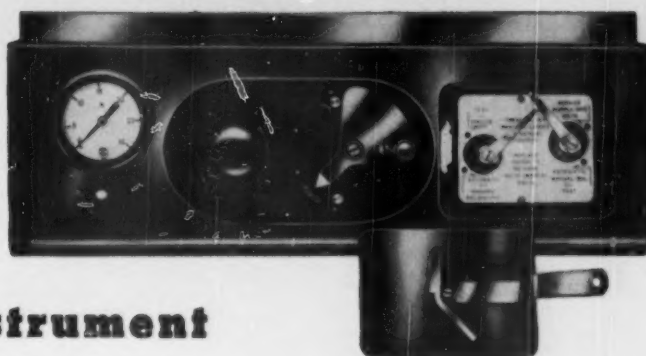


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**No
other**

control instrument



has an external manual-automatic station

as mistake-proof as this

EXCLUSIVE mechanical interlock prevents switching into wrong position

EXCLUSIVE "balancing" arrangement prevents "bumping" on changeover

Among the many features which have put the Bristol Series 500 Air-Operated Controller way out front is the unique External Manual-Automatic Station.

1. "Test" and "Service" positions are mechanically interlocked. Operator cannot, by mistake, go through "Manual" position into either "Test" or "Service."

2. Output pressures of the controller and the regulator on panel are measured by the same gauge. This enables operator to achieve exact balance before going from automatic to manual control or vice versa, thus eliminating the possibility of a "bump" to the process during changeover.

Bristol's External Manual-Automatic Station is an integral part of the controller installation

... yet can be used independently for manually controlling the process *before* the controller is installed or *after* it has been removed for any reason.

Read what else Bristol Series 500 Controller gives you ... calibrated control, single service adjustment, reset stops, etc. Write for new Bulletin A120 on Series 500 Air-Operated Controllers, THE BRISTOL COMPANY, 142 Bristol Road, Waterbury 20, Conn.



BRISTOL

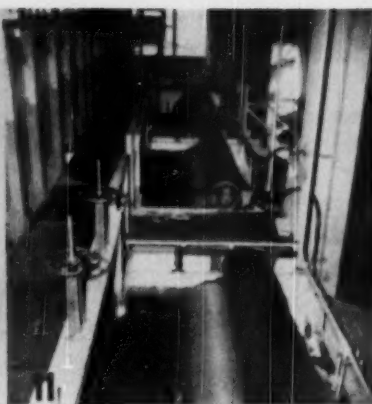
Engineers process control for
better products and profits

AUTOMATIC CONTROLLING, RECORDING AND TELEMETERING INSTRUMENTS



EQUIPMENT SELECTED FOR NEW MacMILLAN MILL.

10—BINGHAM FAN PUMP at head box of wet end of Fourdrinier supplied by John Inglis Co.



11—SHERBROOKE MACHINERIES of Quebec supplied these deckers for pulp washing system.



12—SPEAR & JACKSON furnished cut-off saw assembly for wood room with 102-inch saw from Simonds Saw & Steel Co.

teresting feature of the mill. Three major sources have been utilized. First is the recovery of the greater part of the heat contained in "flash" steam from the blow-off from the digesters. By condensing and passing hot condensate through exchangers most heat is recovered. Second is use of the return circulating water from the evaporator surface condenser. Most heat in the vapor is recovered and put to use as hot water to the mill. Third is extraction of about 60% of the heat in waste water from the seal boxes in the bleach plant. Here again spiral heat exchangers are used. Several smaller heat sources have been utilizing greater part of their heat content, and they combine to make up the supply of clean hot water needed in the mill. A tremendous saving has thus been effected.

Washing and Screening

The brown stock washing system is conventional, consisting of two knotters, three 8 ft. x 14 ft. washers with separate filtrate seal tanks for each washer, plus foam tank. A third knitter is being installed.

Deckers are considerably larger than usual in capacity and dimensions. Excess unbleached white water from deckers is used in the hydraulic barker and for flushing ashes in the boiler plant.

Stock passes to high density storage

chests from washing. The chest proper is a 39 ft. high wood tank, diameter 20 ft. at top and 21 ft. at bottom, to prevent stock hanging up on walls. A bottom steel cone is Heresited and fitted with agitator. All stock and water lines are of non-corrosive material. All wooden tanks and pipes at the mill, incidentally, are of Douglas fir supplied by the Mac-Millan sawmills.

The unbleached stock screening system consists of primary, secondary and tailings flat screens and deckers. Stock to screens from high density towers is automatically controlled for both consistency and quantity. Stock can be pumped either to pulp machine or bleach plant.

Pulp Machine Room

The machine room is of reinforced concrete construction except the north wall of wood, allowing for expansion. Stock is pumped to a 25-ton capacity blending tank outside the room and flows to machine head box. The blending tank is 38 ft. inside diameter and 30 ft. inside height, has a bottom tile-lined concrete cone and walls are of Douglas fir stave. The agitator is the two-propeller type, driven through a double reduction gear.

The pulp drying machine consists of a Fourdrinier and heavy press section followed by Flakt dryer, slitter-cutter,

layboy and baling press. The Flakt is the largest in the world.

The Fourdrinier is for a wire 178 in. wide, 80 ft. long, with a fully adjustable slice, six 12-in. wide suction boxes with cross oscillation, dandy roll, rubber-covered table and return wire rolls, bronze breast roll, 36-in. double suction box. The suction couch has two pneumatically-loaded rubber-covered press rolls. Table roll rails are cased with Monel and the saveall is fabricated stainless steel.

Three presses have bronze jacketed upper rolls and rubber-covered bottom rolls. Press framing is fabricated steel. Loading is by pneumatic cylinders.

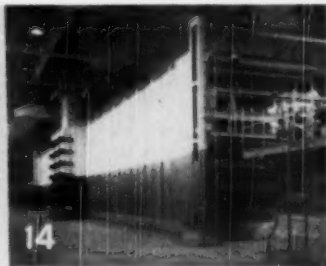
Two 60-in. diameter pre-heat dryers are ahead of the last press to increase water removed from the sheet. All felt rolls are rubber-covered and all bearings are anti-friction. All doctors are Loding type, with those on the breast and return wire rolls mounted on stainless steel angles. The two presser rolls are rubber-covered and pneumatically lifted and loaded with instrument control. All rolls in the Fourdrinier and press sections are balanced for a surface speed of 250 f.p.m.

Except for its size, the horizontal "H" type Flakt dryer is conventional. A

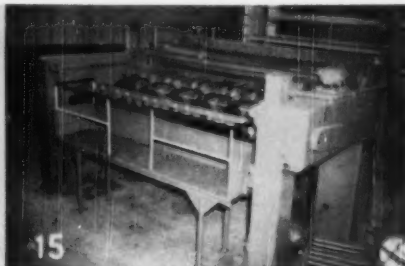


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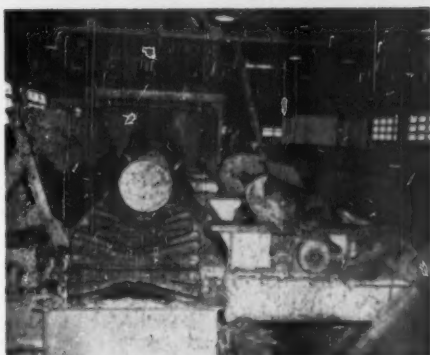
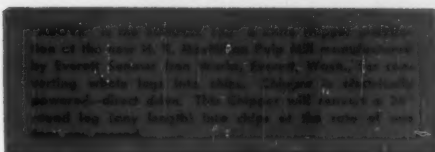
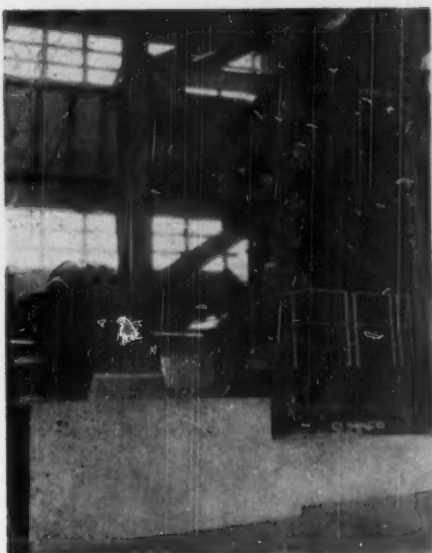
13—JOHN INGLIS (Toronto) FOURDRINIER and wet end of pulp machine built according to PUSEY & JONES (Wilmington, Del.) design.



14—PAPER MACHINERY LTD., Montreal (Gus Hellstrom) supplied Flakt Dryer shown here—widest in world at 168 inches.



15—LAMB-GRAYS HARBOR CO., Hequiam, Wash., supplied automatic layboy and cutter serving Flakt dryer end in pulp production.



This 11 Roll all Steel Roll Case feeds logs into the Barker. All Rolls are powered through Mitre gears from a common drive shaft—immediately to right of Roll case is one of the Sumner log stops and loaders.



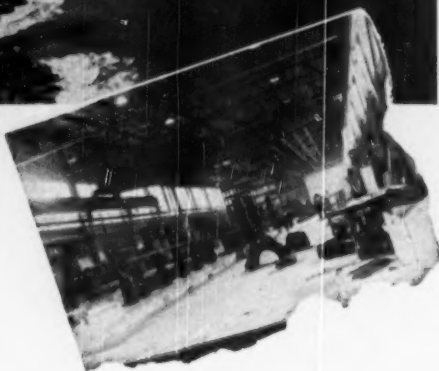
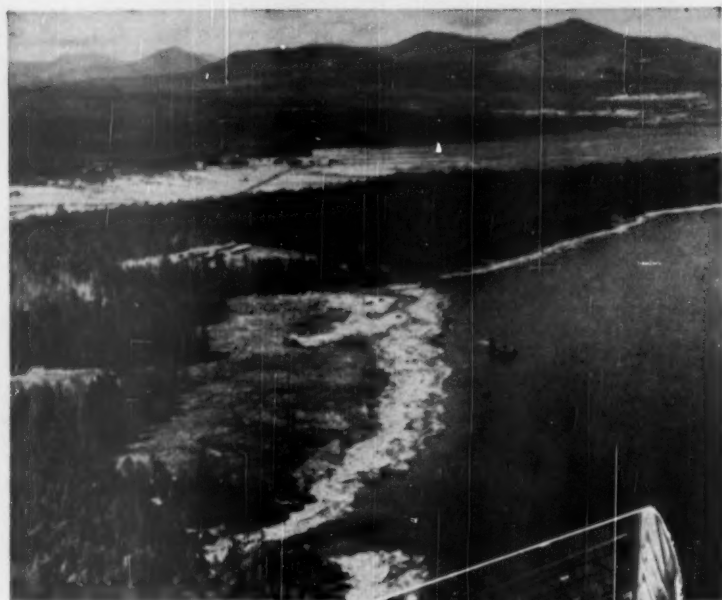
- 153" - 4 KNIFE CHIPPER—DIRECT DRIVE.
 - 2 - 11 ALL STEEL CONCAVE ROLLS WITH DRIVE
 - 1 - LOG TURNING DEVICE
 - 1 - LOG UNLOADER
 - 2 - LOG KICKERS
 - 2 - LOG LOADERS
 - 1 - SET OF DOUBLE LOG DOGGING JAWS
 - 1 - 102" ROGERS KNIFE GRINDER
 - 1 - 102" SWING CUT-OFF SAW
- A NUMBER OF REDUCTION DRIVES OF VARIOUS SIZES.



Another major piece of Sumner Equipment at the H. R. MacMillan Nanaimo Mill is the 102" Swing Cut-Off Saw which is electrically operated—Swing motion is accomplished by means of a hydraulic cylinder (shown top background). In the lower foreground note part of Double Log Dogging Jaws which hold log rigid during operation of Swing-Saw.



From the Start



*One Firm
For All Three
Construction Stages*

Complete plant construction, from preliminary planning through site clearing, to construction, to machinery installation, is conducted by B. C. Bridge and Dredging Co. Ltd. In this way, we provide continuous responsibility and teamwork at every stage of your project—give you an overall saving in both time and money.

B. C. BRIDGE AND DREDGING CO. LTD.

544 HOWE STREET

VANCOUVER, B.C.

..... To the Finish



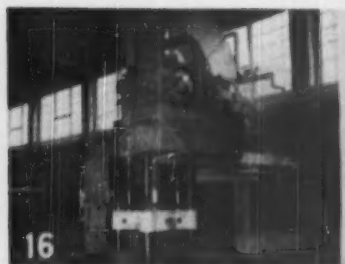
*Contractors
to the Pulp & Paper
Industry*

The H. R. MacMillan Export Co., Ltd., Sulphate pulp mill at Nanaimo is a typical example of our 3-stage construction scheme. The entire job, from the preparation of the ground, the building, the installation of the complex machinery, was handled by B. C. Bridge & Dredging Co. Ltd.

B. C. BRIDGE AND DREDGING CO. LTD.

544 HOWE STREET

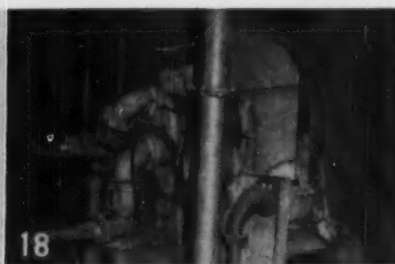
VANCOUVER, B.C.



EQUIPMENT SELECTED FOR NEW MacMILLAN MILL:
16—BALDWIN PRESS in machine room builds kraft sheets into compact bundles.



17—WATEROUS BROKE BEATER in machine room is of modern design.



18—OLIVER UNITED FILTER is shown in operation here in the new mill.

system of horizontal conveyers carries the pulp back and forth the entire length of the dryer, usually entering on bottom conveyer and leaving from top conveyer. These conveyers carry pulp through horizontal air channels. Partitions between channels consist of steel coils of special design. A group of circulating fans at the center of the dryer forces a powerful air current through these channels in such manner that direction of the air current over the pulp varies from deck to deck.

To bring about water evaporation in the dryer a certain amount of forced air circulation is needed, and this is obtained by the use of multiple fan housings, one on each side of the center of the dryer and each containing 18 double fans. End walls of the dryer consist mainly of hinged out-balanced windows, panelled with plate glass. The dry sheet passes to a heavy-duty pulp cutter and continuous automatic layboy. The stacked sheets are conveyed to an 800-ton balling press.

Forked lift trucks convey bales to storage warehouse, 200 x 160 ft., with 841,000 cu. ft. of storage space.

Bleach Plant

Returning to the digester building, the course of stock on its alternate journey to the bleach plant is now traced. The bleach plant is expected to be in full operation sometime in November. This stock is pumped from brown stock chest, through a consistency regulator and pro-

portioning meter to an 8-stage series of bleaching cells. These are steel construction, all tile-lined. Eight stock washers are provided and the stock is washed after passing through each cell. Six washers are rubber-lined and two are entirely stainless steel.

Bleaching mediums to be used are caustic, chlorine, hypochloride and chlorine-dioxide. Incidentally, this Kamyr bleaching plant is the first complete unit of its kind to be installed in Canada. There are similar ones in Southern United States, but the process making use of chlorine-dioxide will be the first on this continent.

From the last bleaching stage, stock is to be discharged into high density storage tanks, similar to those described for the unbleached section, except the steel hopper is rubber-lined. Pulp is rescreened after blending and the stock is passed over deckers and thence to the stock chest and pulp machine blending tank.

Recovery and Chemical Plants

In the recovery system, the evaporator is a six-stage vertical film type with the first stage being two pass with stainless steel tubes. Other stages have ordinary steel tubes. Each stage has a centrifugal type catchall. The range of concentration is from 15% total solids to 55% total solids and the capacity is 152,000 pounds of evaporation hourly. The design is on the basis of using 40 p.s.i. steam to the first effect. Liquor piping

is arranged for divided liquor feed to the fifth and sixth effects with subsequent flow to the fourth, third, second and first effects, from where the concentrated liquor is discharged to storage. Ahead of the recovery furnace is a four-wheel Cascade-type evaporator, a salt cake mixing plant and a primary and secondary liquor heater.

The recovery furnace is a spray type, with design pressure of 675 p.s.i. and working pressure of 350 p.s.i. It has a heating surface of 20,518 sq. ft. to handle 770,400 lbs. dry solids per 24 hours, with steam capacity of 2,650,000 lbs. per 24 hours. Both forced and induced draft fans are used and the waste gases are passed through a precipitator in conventional manner, with recovered solids returned to the Cascade evaporator.

Smelt from the furnace passes through the continuous causticizing system, the equipment comprising a lime slaker with stainless steel impeller, shaft, rake stringers and blades, three 10 x 10 ft. causticizing units with stainless steel impellers and shaft, a 24 x 20 ft. white liquor clarifier, a two-stage mud washer, green liquor clarifier, dregs washer, lime mud storage and pumps and piping.

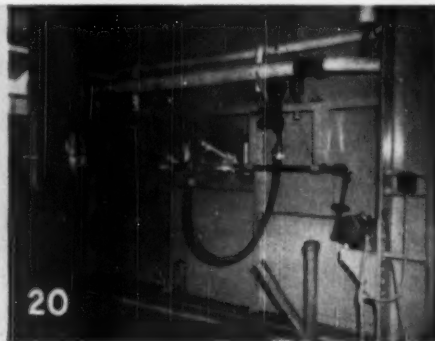
This system reburns lime mud and a mud filter and a 7 ft. x 250 ft. kiln are provided.

Power

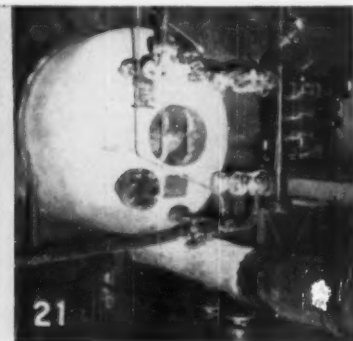
The boiler plant consists of one chemical-recovery boiler, as previously men-



EQUIPMENT SELECTED FOR NEW MacMILLAN MILL:
19—SECTION OF RECOVERY BUILDING (at left) and two of the seven 2,000-unit capacity chip silos built by B. C. BRIDGE & DREDGING CO.



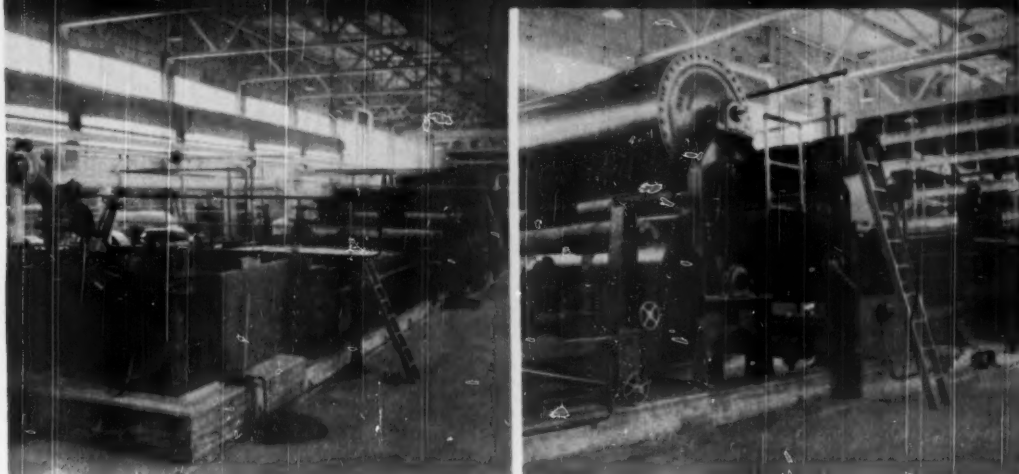
20—COMBUSTION ENGINEERING-SUPERHEATER INC. recovery boiler plant includes this black liquor burner.



21—TOP OF RECOVERY FURNACE showing Hopkinson valve and equipment laid out by Combustion Engineering-Superheater Inc.



ENGINEERS and MANUFACTURERS FOR THE PULP and PAPER INDUSTRY



INGLIS EQUIPMENT AT NEW H. R. MACMILLAN MILL, NANAIMO, B. C.

The Fourdrinier and heavy press section shown above was designed and constructed by Inglis for this most modern mill. In addition Inglis fabricated the multiple-effect Long-Tube Evaporator, the four stainless steel lined Digesters, some 30 Pumps to Worthington design, and supplied 8 Worthington-Moore Steam Turbines.

The Pulp and Paper Industry is well served by Inglis Engineers of long experience in the Industry, and backed by adequate manufacturing facilities. May we discuss your requirements with you?

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GENERAL ENGINEERING DIVISION

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ENGINEERING • DESIGN • CONSTRUCTION • PAPER MILL EQUIPMENT • TUBES • PUMPS • TURBINES • EVAPORATORS • DIGESTERS • PRESSURE VESSELS • MINOR MACHINERY • HEAVY LIFTING DEVICES • HYDRAULIC TRAINING



OTHER MILL EXECUTIVES at new Pulp Division of H. R. MacMillan Export Co. (top, l. to r.): R. E. SIMPKINS, Chief Engineer; D. B. RANKIN, Office Mgr.; SIG PETERSON, Chief Electrician; TOM COLLINGS, Master Mechanic.
Lower row (l. to r.): GEOFFREY JONES, Assistant Chief Engineer; CHARLES P. EVANS, Wood Room Foreman; CLARENCE KENNEDY, Traffic Supervisor; BEV SMILEY, Shift Foreman; L. G. HARRIS, Superintendent; CHARLES HOWARD, Shift Foreman.

tioned, and two steam generators of 75,000 p.s.i. each. Average steam demand of 206,000 lbs. per hour is about 80% maximum demand. During normal operations 120,000 lbs. per hour is expected from the recovery unit. To allow for contingencies boilers were selected for a maximum of 75,000 lbs. per hour each or a total of 150,000 lbs. per hour when firing hog fuel. As an alternative method of firing, steam atomized oil burners are installed in boilers.

Each boiler has a dutch oven for hog fuel firing. The recovery boiler has an economizer, but there are no superheaters. Air heaters on steam generators are of tubular type capable of pre-heating air to approximately 535 degrees F. Forced draft and induced draft fans are turbine driven. The recovery boiler has motor driven fans.

For operating purposes, boiler house and recovery room have a common operating floor as well as a common feed-water system, blow-off tank and steam heater.

The water loss through evaporation during normal operation will not be more than 20%. Make-up water and mill condensate returns are fed to the de-aerator which operates at 15 p.s.i. of spray atomizing type.

Of two main feed pumps one is motor-driven and one is turbine-driven, the latter for normal operation. Oil heater

unit is of the dual type, one pump motor-driven, the other by steam.

The electrical installation is designed to distribute purchased power through a simple radial system to a total connected load of about 12,000 h.p. Power is transmitted to the property at 60 k.v. and delivered at the mill system at 13.8 k.v.

from the British Columbia Power Commission's hydro-electric development 90 miles to the north. Power mill is controlled by a 15 k.v. metal clad switch-board comprising a main breaker, metering and control compartments and four feeder breakers. The mill is served by three 13.8 k.v. feeders, each supplying one step-down substation. Here power is transformed to utilization voltage of 550 volts or 2,300 volts as required. All distribution at 13.8 k.v. and below is carried underground via lead-covered cables. Ducts are used under roads and buildings only. Due to the nature of the terrain a continuous duct system was impractical.

Motors

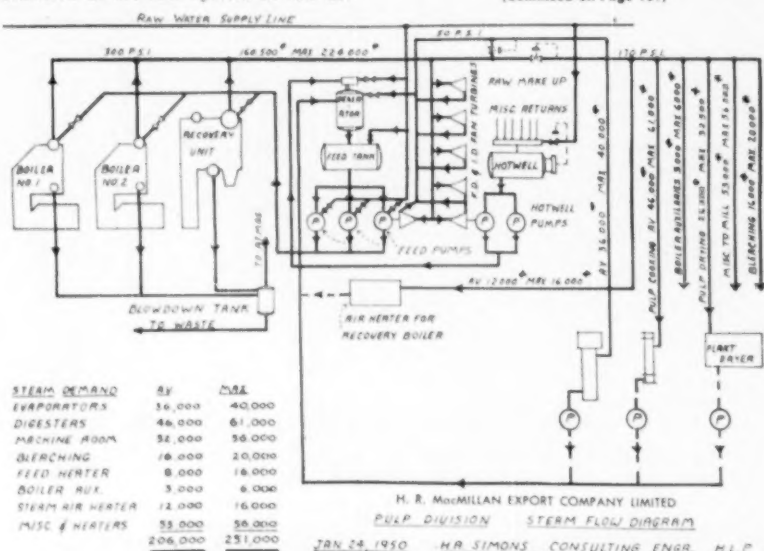
For all drives individual motors are provided. Splash-proof and totally inclosed types are used according to location. With two exceptions, all motors are line start and draw-out magnetic starters grouped in cabinet-type switch-boards. Except in the machine room all motor starters are grouped in a central switch room provided in each building.

A feature is the barking and chipping plant, where a two-pole 1250 h.p. induction motor of special design is employed to drive a multi-stage high pressure pump. The log chipper is driven by a direct connected 1,500 h.p. 277 r.p.m. synchronous motor. On all log conveyers feeding to and from the hydraulic barker adjustable speed D.C. drives are used.

Water

When a location for the pulp mill was being sought, a deciding factor was a large area of water-bearing gravel about six miles south of the mill site. Tests indicated mill requirements of 35 cu. ft. per second (23,000,000 gals. a day) could be obtained. To make this supply available it was decided to install Ranney horizontal water collectors, sinking a reinforced concrete shaft 16 ft. in diameter into the ground to 85 feet. The bottom is sealed with a concrete plug. In the

(Continued on Page 101)



**H. R. MacMILLAN EXPORT COMPANY
LIMITED**

PULP DIVISION

Announce the Opening of Their New

SULPHATE PULP MILL

at

HARMAC, B. C.

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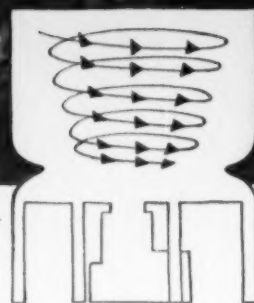
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There are no "Dead Spots" in a Hydrapulper

The inside surface of a Hydrapulper is entirely clear of obstructions. There are no dead spots where stock can pocket and avoid the terrific hydraulic and mechanical action set in motion by the all-powerful rotor.

The hydraulic action that induces rapid hydration has the force and effect of a dozen fire hoses playing on the material.

The mechanical action that tears and disintegrates the material so fast may be

likened to a buzz saw eating its way through a plank.

Today Hydrapulpers are standard equipment for the fast, thorough and uniform pulping of virgin pulps, dirty mixed papers, straw, groundwood, wet-strength, broke.

Available for batch or continuous operation in many sizes, Hydrapulpers will work just as well on a partial batch as on a full batch.

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Associates of THE BLACK-CLAWSON COMPANY, Hamilton, Ohio

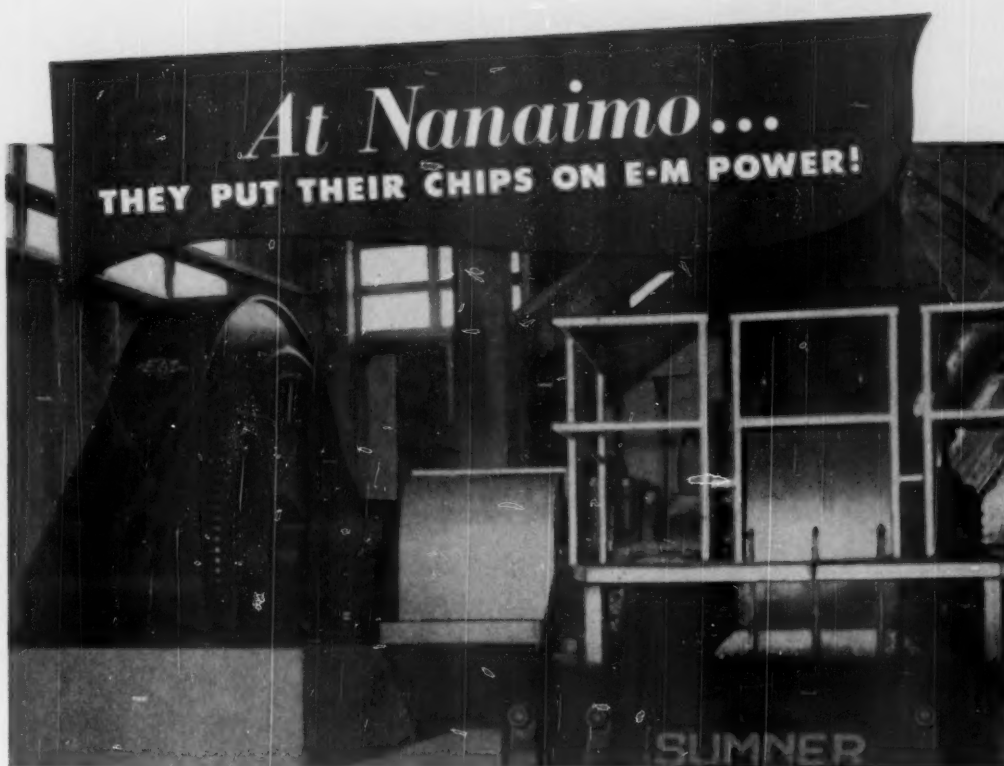
Div. — SHARTLE BROS. MACHINE CO., Middletown, Ohio

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BILTS MACHINE WORKS, Fulton, N.Y.

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B-C International, Ltd., London, England



● Whirling knives . . . shocking impact as huge logs hit the disk . . . terrific load as they reduce to chips in seconds . . . this is chipper duty—the toughest assignment any synchronous motor has to face. And this is why tough E-M Synchronous Motors are heavily favored by the paper industry for its chipper drives.

The 1500 hp E-M Synchronous Motor driving the 15 ft. diam. six-knife chipper at the new H. R. MacMillan Export Co., Ltd., Pulp Mill near Nanaimo, British Columbia, is typical of the E-M line of Synchronous Motors specially designed and constructed for chipper duty. Cast steel rotor; heavy, flared back plates; massive box type frame; high thermal capacity cage windings; extra strong coil-end lashings—these E-M features enable the motor to take shocks and tremendous loads with ease and continue to deliver steady, dependable power.

E-M Induction Motor drives pump for hydraulic barking. Also featured in this new mill is the 1250 hp, 3580 rpm E-M Heavy-Duty Induction Motor driving the centrifugal pump which furnishes high pressure water for the hydraulic barker. The same E-M quality engineering insures that this motor, too, will continue to produce steady, dependable drive power so necessary to pulp production. Coils are extra tough and are treated with a special varnish; coil ends are lashed tightly to each other and to rigid bracing rings to

prevent movement; the rotor is built especially strong and stiff; the shaft has extra strength.

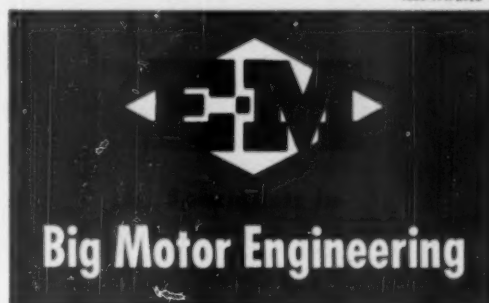
These motors were built by E-M engineers who thoroughly understand the drive problems of the paper industry and who have been manufacturing motors for pulp and paper mill drives for many years.

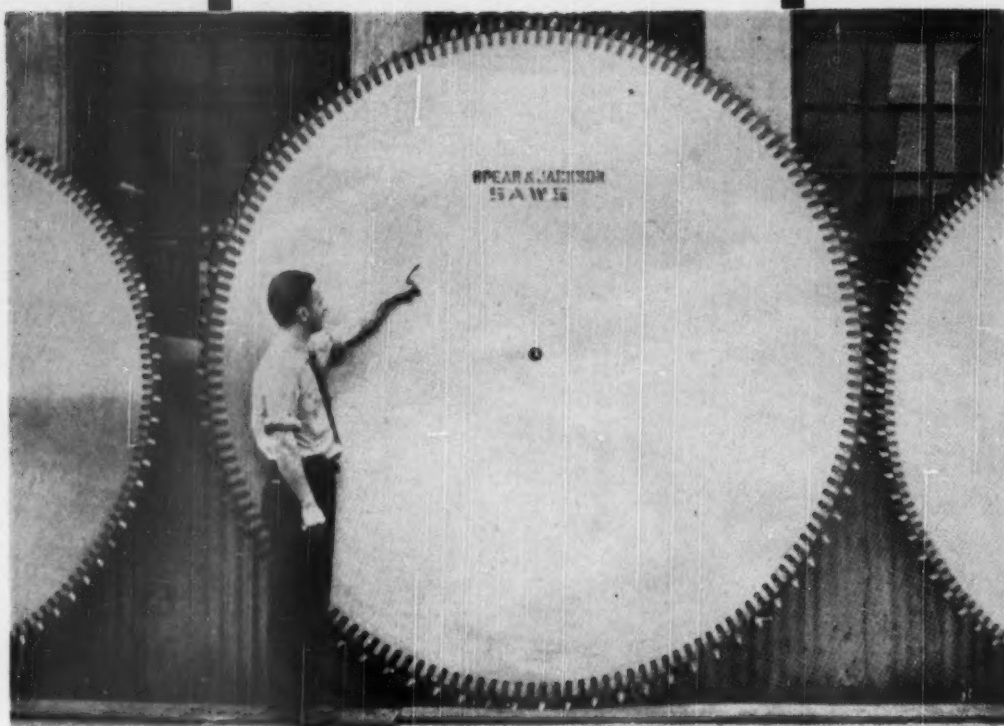
For help on your paper mill drives, call the E-M engineer nearest you, or consult the factory. Write for Synchronizer No. 26, the Paper Industry number.

ELECTRIC MACHINERY MFG. COMPANY

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Sawmill and pulp mill operations—upon which the country and the world depend—are, in turn, dependent in large measure upon the quality of their saws for steady accurate production.

Well aware of this fact, many mills in North America—including the new H. R. MacMillan Export Company Limited Pulp Mill at Nanaimo—use superior-designed Spear and Jackson saws.

One hundred seventy-five years of saw-manufacturing experience support Spear and Jackson's well-founded reputation for accuracy and perfection. Spear and Jackson's Circular saws range in diameter from six to one hundred eight inches . . . each a masterpiece of craftsmanship, each a precision-gauged tool for industries vital to our economy.

SPEAR & JACKSON

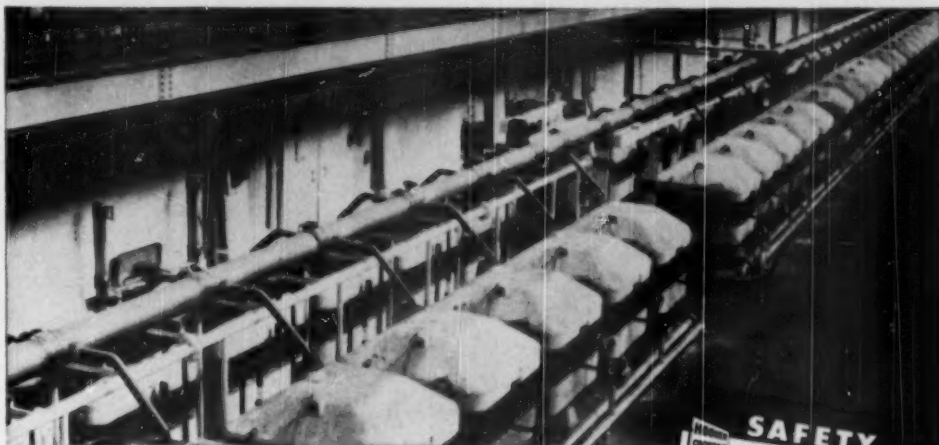
"THE SAW" WITHOUT A FLAW"

Sheffield, England

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Careful Buyers of Caustic Soda and Chlorine ***SPECIFY HOOKER***



Two New Plants Have Specified Hooker.

Nanaimo Sulphate Pulp, Ltd. has specified Hooker Chlorine and Caustic Soda for its new bleached sulfate pulp mill on Vancouver Island. The Columbia Cellulose Company, Ltd. has also specified Hooker to supply its requirements of Caustic Soda and Chlorine for its new dissolving pulp mill at Watson Island, B. C.

In the Hooker Electrochemical Company you too may have a dependable source for caustic soda and chlorine of high quality and constant uniformity. This is testified by the increasing number of users who year after year continue to secure their requirements from Hooker.

They have learned through experience that they can rely on these products of the famous Hooker "S" Cell. Produced under watchful control, each shipment is of the same uniform high quality. Through careful inspection and care of containers it reaches you in the same condition it leaves our plants.

For uniform processing from uniform Liquid Chlorine and Caustic Soda, specify Hooker.



Users of Chlorine will want a copy of the Hooker Wall Chart, "Recommendations for Safety in the Use and Handling of Chlorine in Cylinders and Ton Containers". Printed in large readable type on linen backed paper, it is ideal for mounting wherever you use or store chlorine.

From the Salt of the Earth

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September 1950

55

WAR (Continued from Page 34)

Congress, but executed them. As of this writing, NSRB is solely a planning agency; it was believed until recently that in all-out mobilization it would also execute.

But early in August it began to look as if it would remain solely a planning agency, no matter to what degree mobilization is necessary.

In other words, Washington might need not only industry men to fill NSRB ranks as time goes on, but may need equally competent industry men, although perhaps not in as great numbers, in whatever "operating agency"—Department of Commerce the favorite as of now—takes up the execution. If it is Commerce it seemed likely to some industry observers that LeRoy Neubrech, well informed head of the domestic division of forest products in Commerce, would be prominent. But many pulp and paper leaders believed (and there has been no indication of denial from Commerce) agency men should be supplemented with practical executives from the industry.

The possibility of Commerce, rather than NSRB itself, acting as executor of NSRB planning, was perhaps part of the reason that kept Mr. Niewenhaus from making a full statement to PULP & PAPER early in August. Nevertheless he was voluble in praise of the caliber of industry men who already formed the nucleus of his planning board and were subject to call, as well as to larger groups which had formed the "task forces" in advisory capacity earlier this year and late in 1949. It is believed the nucleus group for NSRB numbers about 12 to 15 at the present time, but others will be added to both NSRB and to any "executing" agency.

No informed leader in the industry was taking the President's \$10½ billion program as anything but the first step. Most were looking to an almost immediate \$15 to \$20 billion in addition, and one well informed company president was girding to string along with Senator Taft's prediction of a \$50-billion annual war budget for some time to come.

Controls May Be Drastic

By early August it was generally felt controls would be more drastic than first contemplated and might come more suddenly. Some believed that wage freezes might be first.

Manpower shortages were sure to be felt much earlier than last war. In the woods it was likely, for example, that areas thus far restrained on full mechanization would accept it now. Realism demanded that in this "warm war" prisoners might be unavailable entirely for woods work, and it was recalled that they were not available last time until late in the struggle. Overall pulpwood inventories as of June 1 were 27% below a year ago; the Far West 44% less; the East 24%; the Lake States 29%. Unemployed figures were only 3,400,000 as compared with 9,480,000 at beginning of mobilization last war.

Certainly, believed the best informed, there would be no price controls on pulp

and paper, but most felt early applications of priorities would be unlikely, although voluntary priorities already were being imposed by suppliers under apparent military request, and were just as effective, it seemed. There is a healthy demand for stockpiling in customers' warehouses, which can mean the approach of an inventory cycle with a consequent fall in demand later on in 1951.

Cynical realism demanded that the industry face the fact it might have to teach official Washington all over again that pulp and paper is essential to war. It was worth while to take note that Robert E. Howard, chairman of the munitions board, stated that more than 70 programs are being developed to effect war mobilization in industry and "if need arises" to coordinate production schedules to conform with military requirements. There was no question, either, but what certain segments of the industry in specific areas were looking anxiously at power requirements of war production.

What Can Industry Do?

What could pulp and paper management do? Boiling down opinions of leaders close to a confused Washington picture, the best advice PULP & PAPER could obtain was this: 1. Watch the Korean campaign and developments in Congress closely as a key to the speed of approach of full controls, full mobilization; 2. Plan for maximum taxes while hoping for the best; 3. Immediately make manpower survey in mills, in accordance with Selective Service Act of 1948 (as amended and added to) to obtain name and age of each employe of draft age (19 through 25), dependency status, numbers and names of those on reserve status; description of jobs of those who are potential draftees and

reserve force members; special skills and abilities of draft-exempt men; 4. Survey mill town population for possible replacements in certain jobs; 5. Appoint one or more personnel to immediately cooperate with state or city civilian defense committees if such have been formed. (It is not fantastic to assume that some pulp mills, for example, will this war be required to camouflage if on "enemy air routes"—just as aircraft plants did last war); 6. Don't hesitate to send top men to Washington if requested and if certain their talents will be used for benefit of war effort and industry's part in it—but insist on their return if and when their efforts become futile; 7. Recalling the complete reversal of the Far East policy by necessity, since April, don't plan business too far ahead on administration predictions on the course of U. S. and USSR maneuvering; those close to Washington intelligence say nobody knows the course Stalin may be taking.

Meanwhile it was well to note that all prices were going skyward (as of Aug. 10) and many papers were no exception. Grey markets were appearing. Many felt, however, that pulp prices might well be snubbed by the simple reappearance of Weyerhaeuser pulp from mills which had been down for a long period due to a waterfront and woods strike.

There were two schools of thought on machinery and equipment. Easiest and most optimistic, with many well informed takers, was that essential materials would not become short enough in supply to affect paper machinery makers for a long time. At the opposite end were those who believed all expansion and improvements would be examined very sharply under full controls.

VOLUNTARY ALLOCATION IS HERE

Voluntary allocation and a voluntary priority system already was in effect by August in respect to many important supplies and materials for the pulp and paper industry. The way it worked—the military asked the suppliers to set aside a percentage of their work for direct war needs, then apportion what was left to their customers.

As one prominent purchasing agent in this industry explained—One reason for it is that we have "hoarders" in industry as well as in the private homes, but direct war requirements were so heavy that something had to be done, anyway.

However, this industry was declared officially "essential" in the last war, and many experienced observers expected it would get what it needs to keep up production.

As this issue went to press, many in this industry expected voluntary allocation to be replaced by the compulsory allocation system of World War II, but military advisers reportedly didn't want this except as a last resort.

But any major expansion not already well along—building of news mills, or of important new additions—is expected to

be indefinitely postponed. State Pollution Commissions which have been issuing "orders" and time limits to mills in some states, may have to wait for the end of hostilities.

However, one big company which builds paper machines, has just completed a large new expansion and expects to keep on plugging away until such time as it may have to do something different. The machine builders in World War II built tank parts, ship parts, boring mills. Impco made torpedoes, for example.

There are two war developments worrying mills—short supplies and rising prices. Some motors prices have gone up for the second time this year, for example.

Stainless and alloy steels will not be as tight as some might expect at first thought, according to some suppliers. It surely will not be as tough to get as mild steel. But this depends on what happens to nickel and chrome, vital items for the alloys. Most nickel comes from Canada and already it is on voluntary allocation through International Nickel Co.

Manganese is not in strong supply. Scrap metal is in good supply now, but foundries supplying the paper industry

One **CURLATOR** in one year

Saved 6,500 CORDS

OF PULPWOOD

IN A NEWSPRINT MILL



PLUS MORE THAN ENOUGH IN
SULPHUR, COAL AND LIMESTONE
TO PAY **ALL ITS OPERATION**
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Curlators now in commercial operation on newsprint sulphite have paid for themselves in only a few months. The mill referred to increased its yield and maintained its quality standards while making these remarkable savings.

The many thousands of dollars that curlation saved in this mill can also be saved in most newsprint mills.

Name of mill furnished on request

**CAN YOUR MILL AFFORD NOT
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MAIL THIS
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TODAY FOR
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CURLATOR CORPORATION
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I would like to be shown how Curlator can make similar savings for me.

NAME _____

ADDRESS _____

CITY _____

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VOLUNTARY ALLOCATION IS HERE (Continued from Page 24)

are dubious of the future.

Starches and clays are not expected to be short, as these are in a sense agricultural and non-industrial items, but a shortage of boxcars could change this picture.

Chlorine is very tight. It will surely get even tighter, if that is possible, as it is used in anti-freeze, ethyl gas, solvents, insecticides for Pacific areas, etc. Caustic soda, which has sometimes been virtually a drug on the market, is getting tight. But this was because of two strikes in caustic soda plants. The plastic and plywood demand for caustic soda can make it critical, as well as for soaps and oil and gas refining.

What was described as "panic" buying of glycols was reported in late July. Glycerine was very tight and a 5-cent jump in price was reported by paper mills.

One large producer of dyestuffs for the pulp and paper industry has doubled capacity as compared with World War II facilities, and this should ease the situation for mill customers.

Titanium dioxide is already very tight. Color pigments are getting tighter. War demand for pigments for painting and for rubber in military uses may make them harder to get. Phenol probably will be entirely unavailable to this industry, one supplier predicts.

All in all, mechanical requirements for mills should not be too difficult to get, with priorities, but metals, chemicals, etc., may in some cases be very tight indeed.

PULP & PAPER learned from a reliable source that at least one U. S. mill had learned of the possibility of deferment of a wet strength paper shipment from civilian use to the military for mapmaking. It is said other mills spotted over the country have had strong indications from government war agencies, and some actual transfers of carload shipments.

Registers as "Lobbyist"

What had to be remembered about the interest of Congressman Celler's men in asking questions which led into phases beyond newsprint was a fit of flash news to Congress and to many non-elective government men—pulp and paper was an industry almost as big as steel, certainly as vital, lots had happened to it since World War II. Perhaps it was the phenomena of many government agencies getting the "news" of pulp and paper's bigness that led APPA last month to register its executive manager, E. W. Tinker, as a lobbyist. Although Mr. Tinker is often in Washington and APPA's Fred Morell has an office there, the association has never lobbied. Still, this doesn't change the essential character of APPA. It does broaden Mr. Tinker's activities and if the industry had a better lobbyist—nobody could think of his name.

ECA Plans Are Watched

Trend toward mobilization was sure to have marked effects on ECA plans in the industry, but Joseph Atchison, chief of the pulp and paper section, Forest Products Branch of ECA, was in Europe and could not be reached by PULP & PAPER for comment. No other official, not even Paul Hoffman, top head of ECA, would comment with regard to this industry in ab-

sence of Mr. Atchison, who was expected to return to Washington around the middle of August.

One possibility worth watching was that ERP and ECA programs would turn strongly toward assistance to fuller mobilization of Marshall Plan countries. In other words, some observers believed that ECA funds would be directed more into channels for the purchase of arms and allied facilities, Marshall Plan country imports into U. S. would focus more on goods needed for our own war effort.

CHARLES RUSSELL has been named public relations officer at Ecusta Paper Corp., Piagah Forest, N. C., now owned by Olin Industries.

TO BETTER NORFOLK MILL St. Lawrence Paper Corp. Formed

Interests headed by Harry Pearlman, under a new organization to be known as the St. Lawrence Paper Corp., have purchased from St. Regis the latter's well known Norfolk, N. Y., mill, including real estate and 25 homes leased to employees.



Mr. Pearlman, (shown in picture) who is also president of National Paper Corp., told PULP & PAPER, in an interview last month that his new firm will spend about \$650,000 in improvements to the Norfolk mill toward its manufacture of waxed papers and other grades for use in packaging National's sanitary tissue products made in its Ransom, Pa., mill. Meanwhile the Norfolk mill is said to be running on some "novel news" on special order. Improvements will include rebuilding by Bagley & Sewall of one of the two paper machines at Norfolk.

Headquarters of National Paper, as well as of the newly formed St. Lawrence Paper Corp. (no connection with the Canadian organization, St. Lawrence Paper Mills Co., Ltd., but so named because of the mill's proximity to the St. Lawrence River) is at 205 East 42nd St., New York. Vice president is one of Mr. Pearlman's sons, Arthur Pearlman. Also associated with him, but in National Paper, is another son, Edmund.

First notice of the sale was announced by Roy Ferguson, president of St. Regis, in July. In doing so, he stressed that production formerly at Norfolk was now transferred to other mills of St. Regis at Deferiet, N. Y.; Bucksport, Me.; Kalamazoo, Mich.; and Sartell, Minn. Said he, "Facilities for bleaching of groundwood, installation of on-machine coating equipment, addition of super-calenders, and other developments, in the mills of our Printing, Publication and Converting Paper Division have placed St. Regis in a more favorable position to meet competitively the demand for the various grades in the wide St. Regis range."

War Packaging To Feature Forum In New York

The military situation in Korea has forced the program committee of the Packaging Institute to revamp its original plans for the program of its 12th Annual Forum at the Hotel Commodore, New York, October 23-25.

A canvass of Institute members shows 3 to 1 believe the Korean affair should influence the character of the program. Accordingly it will be partly devoted to packaging problems arising from the national emergency.

A native of the New York state area where the Norfolk mill operates, Mr. Ferguson expressed himself as pleased at indications that the new owners would conduct operations with an expectation of high level of employment for the community.

Equipment at the Norfolk mill includes 12 pocket grinders, three sulfite digesters and two Fourdrinier machines trimming 91 and 150 inches. Pulp manufacturing includes bleaching facilities. The mill is capable of turning out about 100 tons of groundwood and 40 tons of bleached sulfite. Mr. Pearlman states that improvements will include increasing speed of one of the machines, at least, to 1250 feet per minute and installation of new super-calenders.

The old Norfolk mill has an interesting background, being the first of the so-called "Remington group" of mills which formed the nucleus for earliest St. Regis history. It was completed in 1901 and by June of that year was running newsprint. The capitalization is said to have been around \$300,000. The Raynondville Paper Co. was the second in the "Remington group" and in 1905 still other mills were acquired. By 1911 there came into being what was widely known as the Remington Pulp and Paper Co., Charles H. Remington and his son, Charles R., and others being associated therein. In 1916 the famed Mark Hanna interests of the Midwest acquired a strong holding in the group and Mark A. Hanna II was prominently identified in the operations. The mills were sold to St. Regis in 1921, and it is interesting to note in passing that by then a young man called Roy Ferguson had left his boyhood surroundings, with no thought of paper mills except as fond memories, and was beginning a career in New York financial circles "downtown."

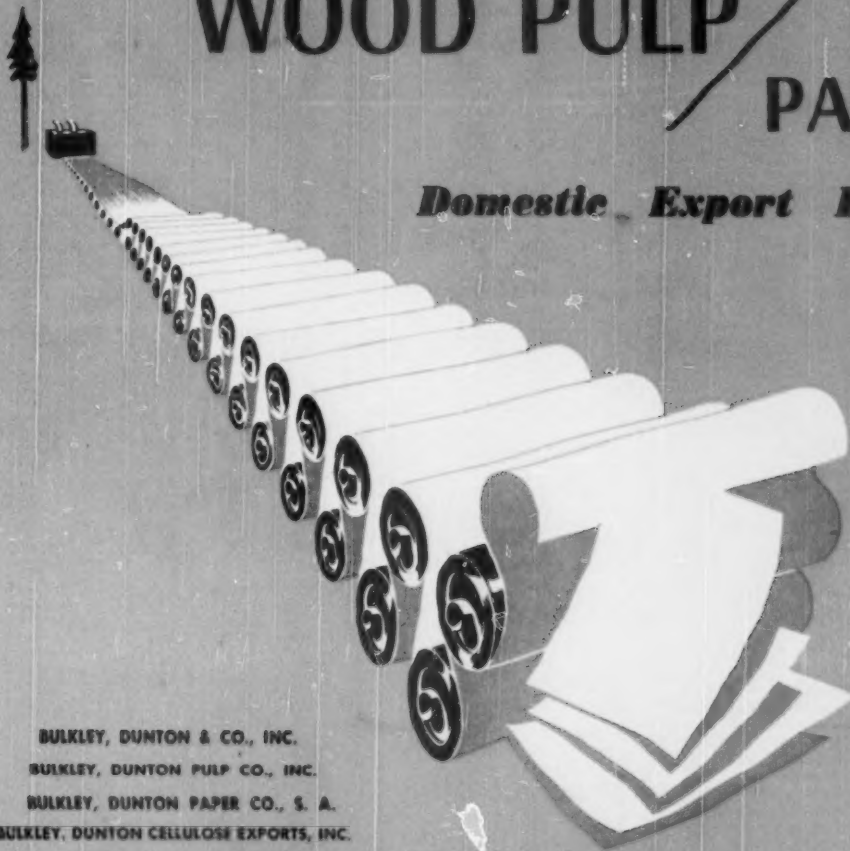
The Norfolk mill was extremely important to the reorganized St. Regis under the leadership of Mr. Ferguson, and its release now to an additional industry for the area means expanded facilities and work for the Deferiet operations as well as the other mills mentioned above. It is a definite forward step for both St. Regis and National Paper's new affiliate of St. Lawrence Paper.

Office and representatives
in 60 cities in the United States,
Europe, Latin America, Africa, and Asia



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Domestic Export Import



BULKLEY, DUNTON & CO., INC.
BULKLEY, DUNTON PULP CO., INC.
BULKLEY, DUNTON PAPER CO., S. A.
BULKLEY, DUNTON CELLULOSE EXPORTS, INC.
BULKLEY, DUNTON PAPER (FAR EAST) CO. INC.
In New England —
CARTER, RICE & CO. CORPORATION

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ORGANIZATION
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A New Use for Paper

This disposable constant flow oxygen mask, developed for U. S. Military Air Transport Service by Air Material Command's Medical Laboratory, University of Washington, and H. L. Burns Co., Portland, Ore., is made of porous paper.

As wearer breathes in oxygen, a thin plastic bellows as mask expands and contracts. Exhaled gases escape through porous paper face piece. At cost of only 33 cents, it is a throwaway mask. Will safeguard passengers and fliers 4 to 5 hours up to 25,000 ft.

May replace rubber masks now used by MATS which must be checked in and out, fitted and sterilized after each use.



IN PACIFIC COAST INDUSTRY NEWS:

RAY SMYTHE (left), of 501 Park Bldg., Portland, 5, Ore., who has represented Rice, Barton, Heppenstall knives and other lines for years on the Pacific Coast, has been appointed the West Coast Agent for the Sutherland Refiner Corp., of Trenton, N. J. VICTOR S. RISLEY JR. (right) recent college graduate, appointed West Coast Representative of Moray Paper Mill Supply Co., of Fitchburg, Mass., succeeding his grandfather, JACK E. JOHNSON, long with Moray. Mr. Johnson will coach his grandson in his new position and in the Moray products: Brandon Dryer felts, Fitchburg screen plates and other mill supplies.

"Headache Box" To Supply Topics at Poland Springs

Arthur J. Brosius, of Brown Co., chairman of the Northeast Superintendents, announces their Poland Springs, Me., meeting Sept. 22-23 will include a general round table on mill problems—with questions drawn from a "Headache Box." J. R. Almand, also of Brown Co.'s Berlin mill, will be moderator.

There will be woods operations, and safety movies, an illustrated talk on the new paper course at Lowell Textile Institute, vaudeville, dancing, golf, banquet and other events.



IN MIDDLE WEST INDUSTRY NEWS:

E. E. (ERNE) LUDWIG (left), Vice Pres., Birmingham & Prosser Co., Kalamazoo, Mich., who conceived the idea of the successful paper technology course at Western Michigan College when his army-veteran son told him he couldn't find such a course in his state—even though Michigan is one of the leading papermaking states.

C. W. KYLE (right), who now covers mills in Ohio and Michigan for the Shortle Bros. Machine Co. Division of Black-Clawson Co., Middletown, O. Prior to his transfer to this area, Mr. Kyle had represented B-C-Shortle-Ditts in New England.

Plans Saskatchewan Plant

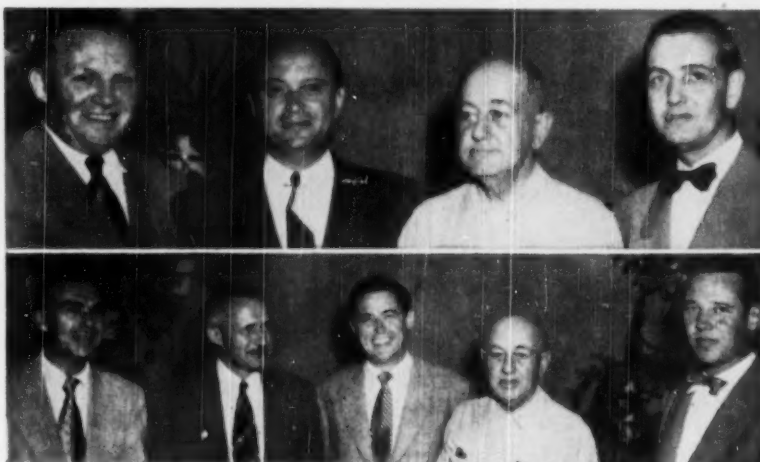
Sidney Roofing & Paper Co., Victoria, B. C., which has been producing pulp and roofing papers, plans construction of a new \$400,000 plant at Lloydminster, Sask., for the manufacture of asphalt roofing and associated products.



INDUSTRY FRIENDS OF LAURENCE WHITTEMORE (right), elected President of Brown Co. early this year, are reminding him that while he won success and wide industrial reputation as a railroad executive it was not until he joined pulp and paper that he won a doctorate. In serious vein, of course, they know the honor this summer—honorary Doctor of Laws degree from University of New Hampshire—is in reality recognition of his services in transportation and general welfare of Northeast area as well as already demonstrated awareness of long-term possibilities of pulp and paper in resurgent New England. Here is shown Dr. Whittemore receiving the symbolic mantle from Dr. Arthur A. Adams (left) President of the University.



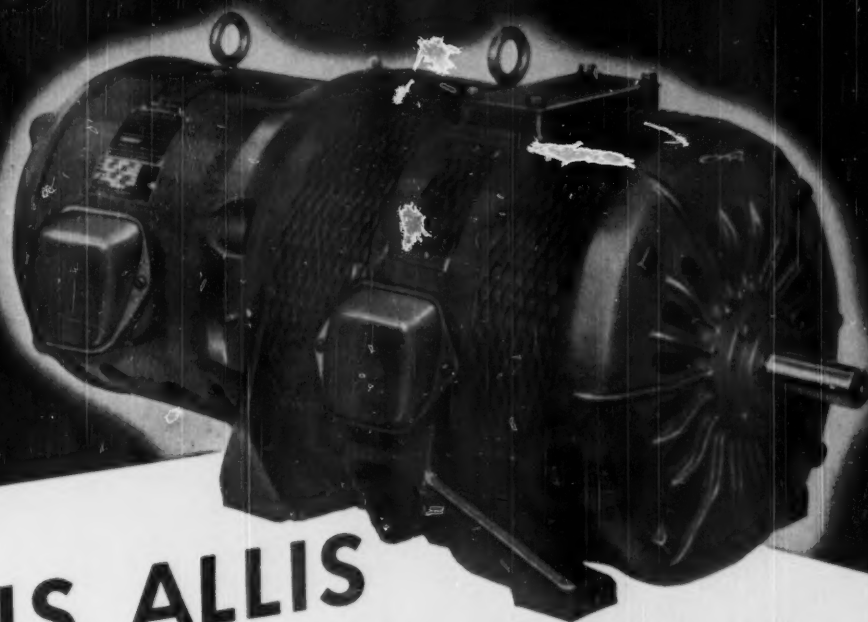
LEFT TO RIGHT are HARRY A. GUNHUS, Simonds Saw & Steel Co., Portland, Ore.; ALBERT E. CUDLIFF, Vice President of Lufkin Foundry & Machine Co., Lufkin, Texas, supplier of pulp and paper mill equipment and representative of Simonds Saw & Steel, and FOSS LEWIS, Pacific Northwest Mgr. for Simonds, of Portland, Ore. They are shown here in Portland.



NEW OFFICERS (top—l. to r.): Richard Peeters, St. Regis Paper Co., First Vice Chairman; O. W. Callaghan, Edgar Brothers, Chairman; C. B. Smith, Noble & Wood, Affiliates Representative; Frank R. Hamilton, Allied Paper Mills, Secretary. Harvey Hartman, American Box Board Co., elected Second Vice Chairman, was not present.

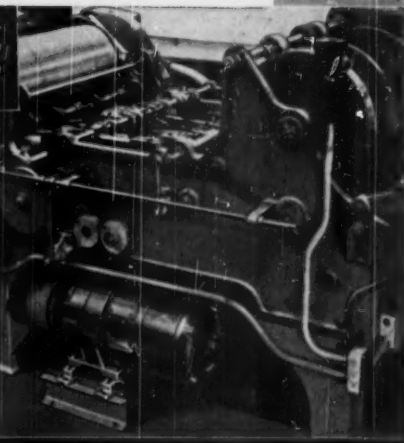
Below—Sports committee (l. to r.): Leon Hank, National Gypsum; Fred Goodwill, St. Regis Paper Co. Resident Mgr.; John L. Vanderberg, Vanderbilt; C. B. Smith, Noble & Wood; and James R. Verdon, American Cyanamid.

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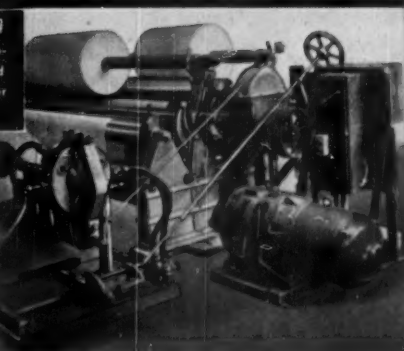


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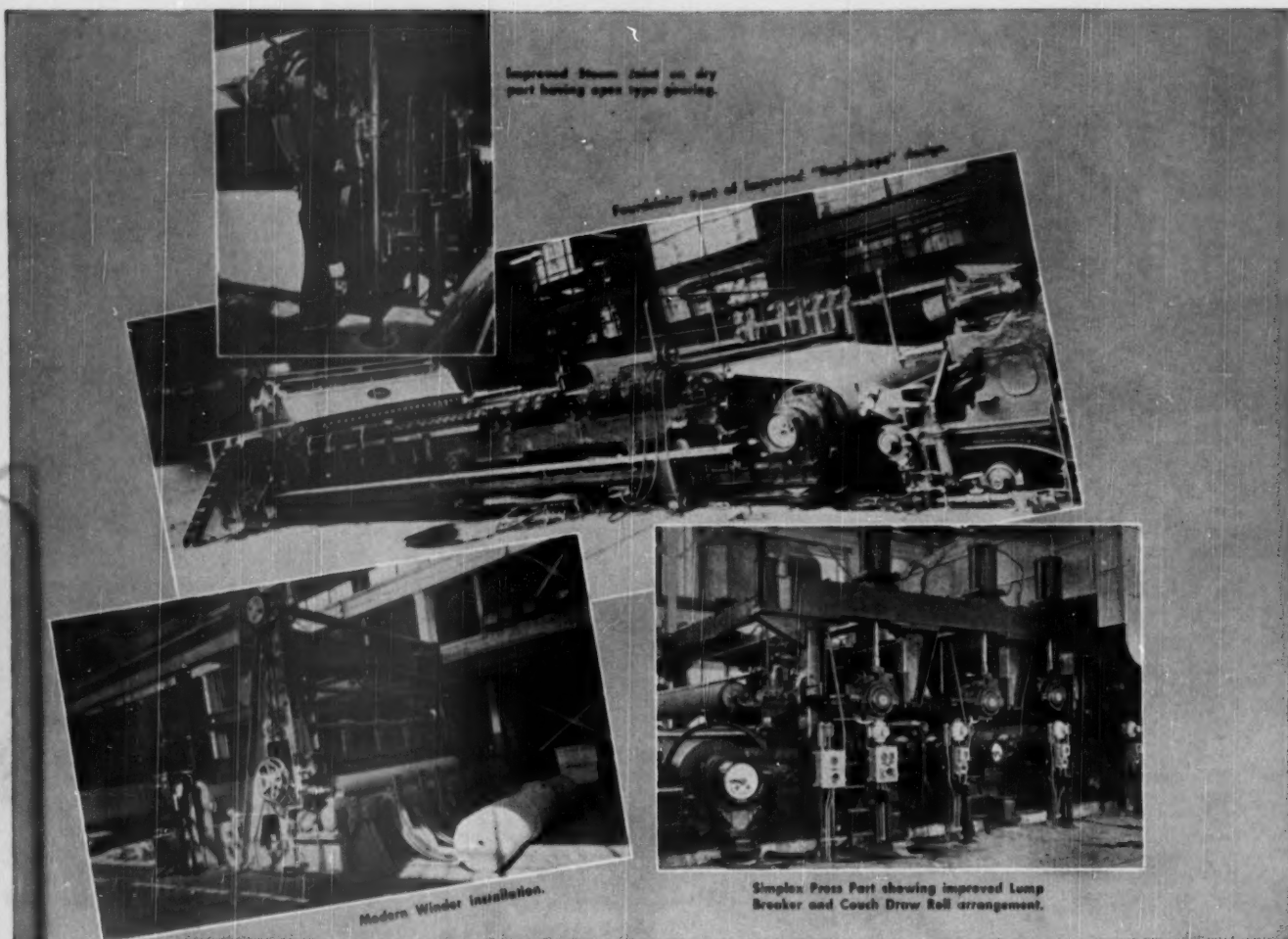
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SWEDISH MILLS' EXPERIENCE

Evaporating and Burning Sulfite Liquor

By Curt Rosenblad

ACKNOWLEDGEMENT—The author gratefully acknowledges assistance given by the plant managers of the four Swedish Sulfite mills discussed in the article and their permission to publish operation reports. It is further desired to acknowledge research work done by the Swedish Sulfite Waste Liquor Committee with the Swedish Steam Users Association and their decision to make reports and publications available.

Evaporation of sulfite waste liquor is a subject which has been discussed thoroughly in recent years. Most articles are based on Scandinavian experience. Sweden took an early interest in the evaporation problem, primarily for the purpose of heat-economy. The problem became particularly important during the war because the country at that time was blocked from imports of fuel.

Today, of the 54 Swedish sulfite mills, 12 have facilities for evaporating sulfite waste liquor. Five more are expected to have evaporators in operation before the end of this year. All are built with heat recovery in mind. At the same time a few of them get the extra advantage of solving their stream pollution problem. The fact that they haven't been forced to do more than what in their own viewpoint is advantageous, explains why many of the mills haven't built the evaporators for the total amount of available sulfite waste liquor. Instead some of them have preferred to go more slowly, starting with a smaller number of effects but always having in mind the possibility of extension to full capacity.

There are two important factors in determining the most economical way to

obtain the evaporation of sulfite waste liquor. They are high concentration of the initial liquor in the digester and limitation of the dilution of the liquor to the evaporator.

Heat economy possibilities by evaporation are important. The multiple-vacuum evaporator is the common type but the most economical, taking total heat and power consumption into consideration, are the counter-pressure and the recompression evaporators. Both of those types can be used advantageously if the evaporation is performed at a pressure above the atmospheric pressure. There is a surprising decrease in required power when going over from vacuum to pressure.

Accomplishing evaporation at high temperatures and pressure is possible if a sufficiently efficient method is introduced for mastering the scaling problem. The switching method is described and the control of the washing and determination of periods for switching.

Operation data for four evaporators, installed in different mills in Sweden, and the results obtained from three of the same, covering the latest available reports for a six months period or longer, are given. How incrustation can build up after a long period of operation in parts of the system where periodic switching was not arranged is discussed.

From experience gained where the evaporators have been in operation a long time, what we call "station switching" has been developed. That means that every part in contact with the liquor or vapor—pipings, pumps and tanks—are

CURT ROSENBLAD, now resident of Princeton, N. J., author of this article. His company developed switch evaporation system licensed in U. S. to General American Transportation.



switched and washed in the same manner as the heating surfaces.

Results from burning the liquor in small capacity Swedish mills has not presented any serious burning or ash problems.

Evaporation of sulfite waste liquor can today be considered a solved problem. Moving the pressure above the atmospheric reveal good prospects for satisfactory heat economy. Burning concentrated liquor and collecting of ash are secondary problems.

Channel Switching

I would like to explain the general principles, design and operation of the channel switching system (patents applied for):

This represents a method designed generally for evaporation of liquors, where the scaling problem is serious. In this system the evaporator surfaces subjected to boiling liquor are periodically switched with those in contact with vapor and condensate. The heating surface is thoroughly cleansed of chemical scale during normal operation by this method.

Figure 1 shows a sectional view of a one-effect evaporator. The heating surface is built up of thin plates in parallel, fixed in their position by a number of strips

ABOUT THE AUTHOR AND INSTALLATIONS OF HIS SYSTEM

Curt Rosenblad, formerly of Stockholm and now a resident of Princeton, N. J., has long been known in international pulp circles as the inventor of improved equipment in the pulp industry, especially in connection with fuel saving, the Rosenblad Digester Blowdown System, and other processing systems and equipment.

With the aid of Swedish engineers at the Hallsta Pulp & Paper Mill at Hallstavik, Sweden, which is owned by Holmens Bruks & Fabriks, A.B., a Swedish company which also owns the Loddby pulp mill and the Holmens paper mill, both at Norrköping, the Rosenblad company in Stockholm developed the Rosenblad channel switching system for the evaporation of sulfite waste liquor.

A successful pilot plant trial of this system in America was first reported in an exclusive illustrated article in *PULP & PAPER*, March 1950 issue, page 36. It described a small one-effect installation at the Interlake mill of the Consolidated Water Power & Paper Co., Appleton, Wis., sponsored by the Sulfite Pulp Manufacturers' Research League (of Wisconsin and Michigan).

In January 1950, Mr. Rosenblad, who is a graduate engineer of the University of Stockholm, gave a paper before the Canadian Technical Section in Montreal on this subject of sulfite liquor treatment and utilization, also reported briefly in that March issue.

The latter and major portion of that paper dealt with actual experiences of Swedish sulfite mills in evaporating and burning the liquor effluent. That entire portion of his paper is published here in full. It deals with the practical results achieved at Hallsta and later at three other Swedish mills—Vargon, Loddby, and Kvarnsveden.

General American Transportation Corp., Process Equipment Division, New York, is sole U. S. licensee for the Rosenblad system. It made the installation at Appleton and is making another larger installation in the Far West. One other Wisconsin mill is presently engineering for a commercial size installation.

Mr. Rosenblad is head of the Rosenblad Corp., 1270 Sixth Ave., New York, N. Y. and continues as head also of the A. B. Rosenblads Patent, his Swedish company in Stockholm.

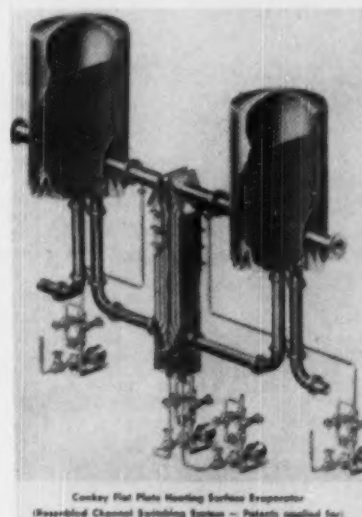


FIGURE 1—Sectional View of One-Effect Conflow Evaporator. Reproduced from a pamphlet issued by General American Transportation Corp., Process Equipment Division, New York, sole U. S. licensee for the Rosenblad system.

or distance pieces. At the top and bottom every second channel is open at the left side and welded tight at the right side. The other channel is just the opposite—open at the right side and welded tight at the left side. The top is the vapor side and has two headers connected to the two separating chambers. The bottom is the liquor side and has two headers, each with nozzles with switching valves for alternating to condensate line and liquor line. Up to date, all these evaporators delivered to Swedish mills have had individual switching like this.

How often the evaporator's heating surface has to be switched cannot be decided without testing during operation in full scale. The rule is to start by choosing rather short intervals, usually every 8 hours for the switching. Analyzing the

condensate for contents of sulfite ions indicates when the heating surface is clean. The switching intervals can be further extended if it is determined that the time for building up the scaling is considerably longer than the time for cleaning.

Usually we recommend a very good margin to be sure that no permanent scale is going to be formed. In a sulfite mill the character of sulfite liquor can change very quickly. For instance, a sudden air leakage can increase the SO_3 ions considerably. It is, therefore, necessary to have a good margin.

The nature of the scaling and the best distribution of the condensate and liquor to the different effects in an evaporator in order to get the best cleaning effect by switching and at the same time the

best heat economy are problems which have been carefully studied. We have especially tried to find the upper temperature limit for evaporation. This unfortunately cannot be done in a single effect test unit. Representative tests can only be made in the same number of effects which correspond to a full size evaporator. The only thing we can state is the following:

If at a certain temperature it is possible to eliminate the scale in one single effect, it will be still easier to eliminate it in a multiple effect evaporator.

How the rate of evaporated water per hour per sq. ft. of heating surface affects the scaling and heat transfer coefficient has also been carefully studied. The higher rate, the higher the heat transfer coefficient and the greater the scaling. At

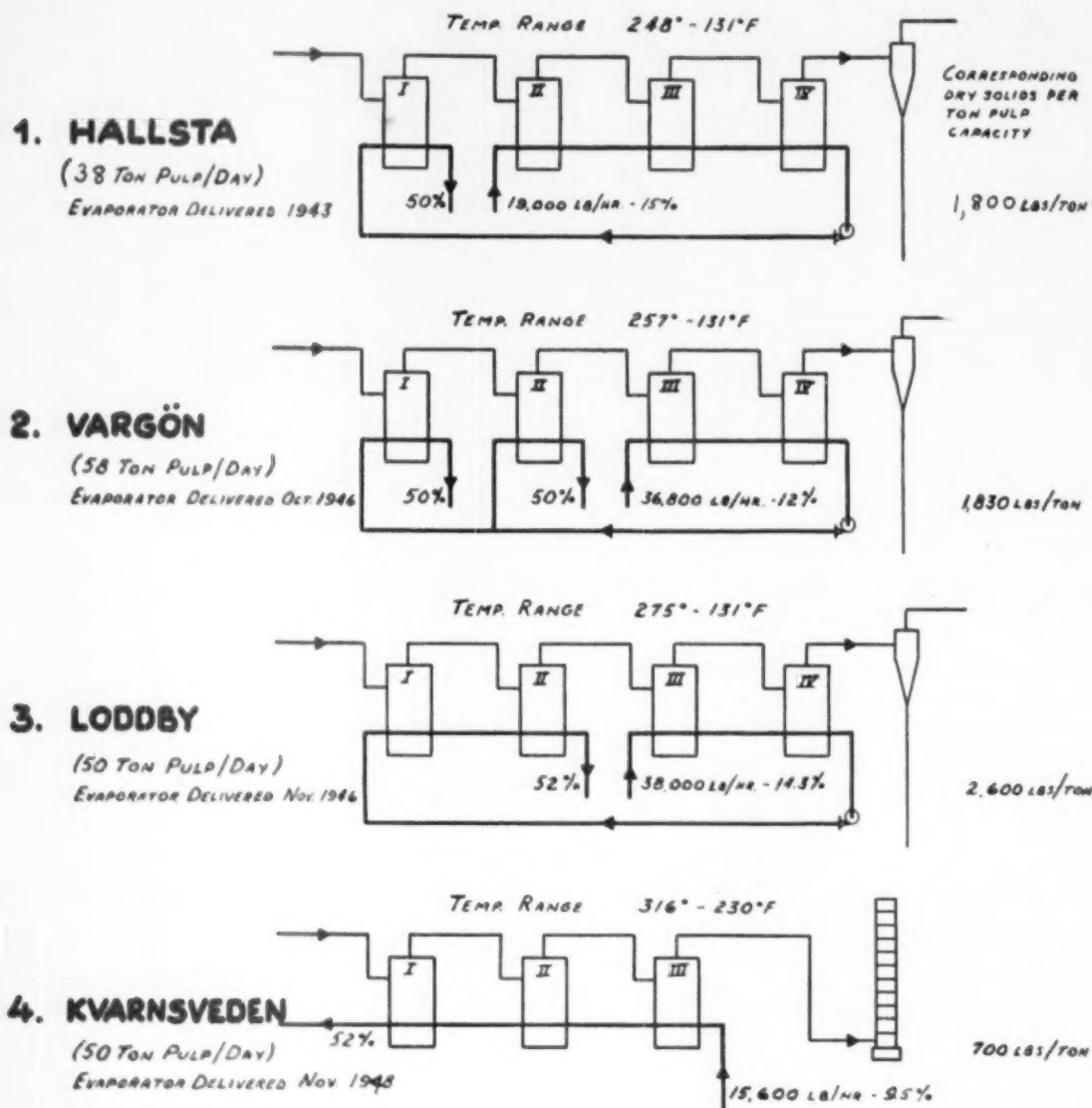


FIGURE 2—EVAPORATOR DESIGN DATA FOR FOUR SULFITE MILLS IN SWEDEN. Rosenblad Switch System Is Used.

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too low a rate there is some risk of internal circulation in the heating body, causing local precipitation. This can occur more easily in a big heating body than in a small test unit. Generally reliable results can only be reached from operation of evaporators of commercial size.

Evaporator Design in Sweden

Figure 2 gives the names of four sulfite mills in Sweden that have had our new type of evaporator in operation for a period of a year or longer. All of them produce sulfite pulp for their own paper mills—No. 1, 3 and 4 for manufacturing newsprint and No. 2 for different qualities of paper.

The sulfite mills are of comparatively small size, 38 to 50 tons a day, and consequently the evaporators are small also.

No. 1, 2 and 3 mills built their evaporators for a capacity corresponding to the total amount of available thin liquor. This is indicated by the figures to the right, giving the feed liquors contents of dry solids per ton of pulp. An average figure for Swedish mills making strong sulfite pulp is 2,500 lbs. of dry solids per ton of pulp (oven dry). An 80% recovery would give 2,000 lbs. which is pretty close to the figures for No. 1 and No. 2 mills. The relatively high figure, 2,600 lbs., for No. 3 is probably due to greater actual production than 50 tons a day of pulp. They are all built 4-effect vacuum in a temperature range between 131°F and 275°F maximum.

The latest, No. 4, delivered in 1948, is a 3-effect pressure evaporator, temperature range 316°F-230°F. Vapor from the last effect goes to the mill's alcohol plant. Less than 50% of the slop from the latter is pumped to the evaporator. The low concentration of only 9.5% in the slop could not, from a heat economy point of view, justify a vacuum evaporator for the total amount of slop. The capacity of the pressure evaporator was limited by the number of effects. We stopped at three at that time because we considered our experience in high pressure evaporation insufficient. This limited the dry solids through the evaporator to 700 lbs. per ton of pulp as will be seen in Figure 2. Evaporating the rest economically can be done by adding a fourth effect to the pressure evaporator, extending the present effects and eventually completing the evaporator with a reboiler. The reboiler is for transforming to clean steam that part of the acid vapors which cannot be used directly as process steam.

Results from Swedish Operations

The latest operating data for these four mills are shown in Figure 3, and are all based on actual reports made available to us by the plant managers of the respective mills. Design and operating data are put together to make the comparison more convenient. For No. 4 mill only the results from the delivery test are given because figures from continuous operation came in too late but I will give these figures later.

Before discussing the results from each

Mill No. Mill Name	1 Hallsta	2 Vargon	3 Lodby	4 Kvarnsveden
Daily output Tons/24 hrs.	38	58	50	50
Evaporator type	4 effects vacuum	4 effects vacuum	4 effects vacuum	3 stage counter-pressure
Temperature Range °F	248 - 131	257 - 131	275 - 131	316 - 230
Evaporation started	July 1943	Oct. 1946	Nov. 1946	Nov. 1947
Operation time for data given	7 months 1949	12 months 1948	12 months 1948	Delivery test 1949
Actual operation time	3210 hr. in 133 days	7190 hr. in 330 days	2686 hr. in 219 days	
	<u>Design/Operation</u>	<u>Design/Operation</u>	<u>Design/Operation</u>	<u>Guarantee/Test</u>
Feed liquor #/hr	19000/17800	36800/29500	36300/34500	15600/16800
Dry content %	15.0/15.4	12.0/11.9	14.3/14.6	9.5/9.2
Product #/hr	5800/5600	8800/7100	10400/9000	2800/2800
Product dry content %	50.0/49.3	50.0/50.0	52.0/56.4	52.0/56.0
Evaporated #/hr	13200/12200	28000/22400	27600/25500	12800/13800
Utilized capacity %	93	80	92	108
Economy	3.75/3.2	3.63/3.5	3.48/3.3	14/16 --/21

FIGURE 3—OPERATING DATA FOR FOUR EVAPORATORS INSTALLED IN SWEDISH MILLS

installation, I would like to make the following comments which apply to all of them.

The guaranteed evaporation capacity and steam consumption equivalent to design data in the table were met in delivery tests.

The results obtained during 1948-1949 are not directly comparable with the design data based on guaranteed evaporation as well as steam consumption for an installation is based on continuous operation whereas the operating figures given in Figure 3 include starting and stopping periods.

Production at the above mentioned mill as well as other Swedish sulfite pulp mills during the years after the war has not been up to full capacity. In other words, the evaporation installation has not been utilized fully. In fact, the operation has been more intermittent than normally with extra start and stop periods which have affected the operating results.

For the individual installations the following special comments may be made:

No. 1 Hallsta

This is the oldest installation. Each effect is equipped with two heat exchangers of our spiral type in parallel and pumps for forced circulation. The four flash tanks were not designed for the evaporator. They are old digesters removed from a former kraft mill and have a volume considerably larger than is required.

Since being installed in 1943, the evaporator has been in operation whenever the sulfite mill was running. Improvements in cleaning methods have been made so that the seven months operation during last year have shown better results than any earlier time. From the table it can be seen that the actual operating time for the operator during this period was only 133 days. This means

that there have been stops caused by lack of liquor from the sulfite mill. These stops have caused considerable losses of dry substance because the whole system had to be discharged. This has been confirmed by comparing the calculated amount of feed liquor, 17,800 lbs./hr. as given in the table with the measured 18,400 lbs./hr.

Considering that the time for starting and stopping is also included in the total operation period, it seems clear that the guaranteed evaporation has been met during continuous operation.

Labor costs during the same time, 3,210 hours, has been as follows: Operator, 3,210 hours; cleaning and repairs, 178 hours; total, 3,388 hours. This corresponds to 0.37 man hours per ton of product.

Total power consumption for the forced circulation pumps has been reduced from 90 kw. to around 45 kw. To this has been added power consumption for liquor pumps and condensate pumps. A total of 60 kw. or 23 kw. hr. per ton product is a safe estimate. This is still a fairly high figure. Power cost and also repair costs are substantially caused by the pumps for forced circulation in this evaporator.

Periodic cleaning of tanks, valves and pipe lines represents a smaller part of the evaporation costs. By switching the first effect every 12 hours and the second to fourth effects every 8 hours, the heating surfaces remain clean and scaling trouble is eliminated.

No. 2 Vargon

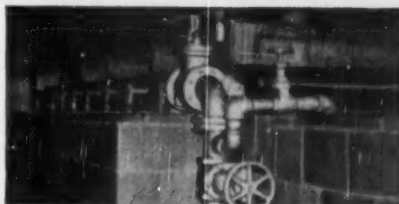
This and the evaporators delivered later have lamella type heat exchangers with natural circulation.

From the table it can be seen that the evaporator has been in continuous operation the whole year of 1948 but only 80% of the capacity has been utilized.

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This is to suit the available amount of feed liquor and to avoid unnecessary top-load in the delivery of steam from the boiler house.

Labor hours per ton product was 0.365 and power consumption 11.0 kw. hr. The power consumption is considerably reduced compared with No. 1 mill.

Switching of each effect every 16 hours keeps the heating surface clean. Periodic inspection and cleaning of other parts is done during a few hours stop each Monday.

No. 3 Loddby

Actual operating time during 1948 was only 2686 hours in 219 days. The evaporator has, as mentioned above, a considerable excess capacity and the mill only reclaims around 60% of the dry solids in the waste liquor.

The evaporator has been utilized to 92% of full capacity during the time it has been running. This is partly due to the rather high dry solids in the product, 56.4% instead of the guaranteed 52%. The total labor cost corresponds to 0.27 labor hours per ton product and power consumption to 11.1 kw. hr. Switching of each effect is done every 8 hours.

No. 4 Kvarnsveden

Data from official delivery test compared with guarantee data are shown in the table. From this can be seen that the performance was remarkably better than the guarantee figures. Regarding the heat economy 14 or 21, I refer to explanation given above.

For a six month period from May to Oct. 1949, the following results have been obtained:

Actual operating time 2680 hours. Evaporated water was 10,200 lbs./hr. based on the amount of thick liquor. Based on direct measuring of the feed liquor, it was 12,000 lbs./hr. or not too far from the guarantee figure of 12,800. The difference indicates a certain loss of dry solids. The average concentration has been 52%.

The heating surfaces are switched as follows: First effect with 24 hour intervals, second effect with 8 hour, and third effect with 12 hour intervals.

There has been some extra work in keeping the other part of the evaporator clean. Around 500 man hours have been spent for cleaning and repairing. In spite of this and the low capacity, the total labor hours were not more than 0.57 man hours per ton product. The power consumption was 14.0 kw. hr. per ton product.

Results of Experience

The experience from these four installations proves that the switching method itself as it has been recommended in each individual case is a simple and quite efficient method for controlling the scaling. For other parts in contact with the liquor outside this control, periodic cleaning is required.

Usually the precipitation in pipings and valves are not observed until it has built up quite a lot. Our first experience in

New Liquor Burning Method

In this article Mr. Rosenblad refers to a new, specially designed furnace in the Loddby Sulfite Mill of Holmens Bruks & Fabriks A.B. at Norrköping, Sweden, for the burning of evaporated sulfite waste liquor.

His statement that it is "in successful operation" is certainly not an over-statement, by any means, as PULP & PAPER finds in a new report from the Loddby mill a showing of 17% carbon dioxide which is plenty good in any type of boiler.

At Loddby, waste sulfite liquor is injected in the front of the furnace. Atomization takes place in the burner and this is accomplished by means of steam. The air enters the chamber of through tangential inlets and surrounds the atomized liquor in the chamber.

The liquor enters the burner at a temperature of from 185 to 195 degrees Fahrenheit. Solids content is from 55% to 61%. Pressure before the burner is 70 psi to 100 psi. There is no alcohol plant at Loddby; therefore the liquor evaporated is acid.

this case was after having had an evaporator in mill No. 1 in operation a long time. At mill No. 3, there was a rather heavy precipitation in a pipe bend, connecting the top of the heat exchanger in one effect with the separator tank.

The scaling outside the heating surface was controlled by putting in double pipe lines for liquors and adopting periodic cleaning of tanks and the heavier pipe lines. For the vacuum evaporators once a year is sufficient. For the pressure evaporator at mill No. 4, we probably have to do this at least two times a year.

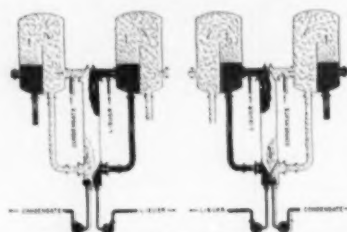
To facilitate the cleaning of all parts, we have recently gone over to station switching. (Ed. note—A station switching system is being pioneered this summer on a 4-effect evaporator installed at the Mo-Domsjö Sulfite Pulp and Paper Mill at Mo-Domsjö, Sweden.)

Station Switching (Patents Applied for)

This method means that every part in contact with the liquor or vapor-pipings, pump, valves, and tanks—are switched and washed in the same manner as the heating surfaces.

Figure 4 shows this diagrammatically for one effect. In the figure on the left the liquor goes in the direction left to right and in the other right to left. Observe that every part which has been in contact with the liquor after switching is in contact with vapor and condensate. Only five pairs of valves are needed to achieve the switching.

We have several evaporators of this type on order at the present time and



Diagrammatic drawing of Conkey Flat Plate Heating Surface Evaporator showing two intermediate effects with liquor and condensate switching.

FIGURE 4—STATION SWITCHING. This drawing of Conkey Flat Plate Heating Surface Evaporator, made in U. S. under license by General American Transportation Corp., shows how it works, as described in article by Mr. Rosenblad.

we have all reason to expect satisfactory results.

Burning and Ash Handling

I believe that in order to discuss the subject of evaporation and the disposal of sulfite waste liquor more completely, the problem of combustion and the results obtained in the four installations described should be mentioned. Right from the beginning I will admit that we have always looked at the problem concerning combustion of concentrated sulfite waste liquor to be a minor art. We have assumed that the difficulty which might possibly arise could be overcome comparatively easy as soon as we got the opportunity to study such problems after installation of evaporator. That would mean when the evaporator installation was in operation long enough to permit a sufficient amount of liquor to be delivered to the steam boiler for tests and certain experiments concerning the combustion of the solids.

In the four installations described which have been in operation long enough, the above stated assumptions have shown themselves to be correct. Because the installations are of comparatively small capacity, there has not been any reason to worry about either the sulfur or the ash problem. Further, in three of the installations it has been possible to divide the liquor so that the heat obtained from the dry solids at the maximum burning comprises 50% of the load in the boiler. In the third installation, at the Loddby mill, the heat from the solids has amounted to approximately 75% and a certain period sometimes close to 100% of the boiler load. In order to be able to obtain such a high boiler load from the dry solids, this installation has evaporated the liquor to an average concentration of 56.4% instead of the guaranteed 52%.

I would like to give some information below concerning the results obtained from the different installations. One usual question at an early stage was: "Can a boiler be used to burn concentrated sulfite waste liquor exclusively and what will be the efficiency?" To get the answer to this question, the Swedish Steam Users Association on behalf of the Swedish Sulfite Liquor Committee arranged for tests in the Hallsta mill in June 1946. A 3,200 sq. ft. boiler of the cross-drum type had the furnace equipped with three

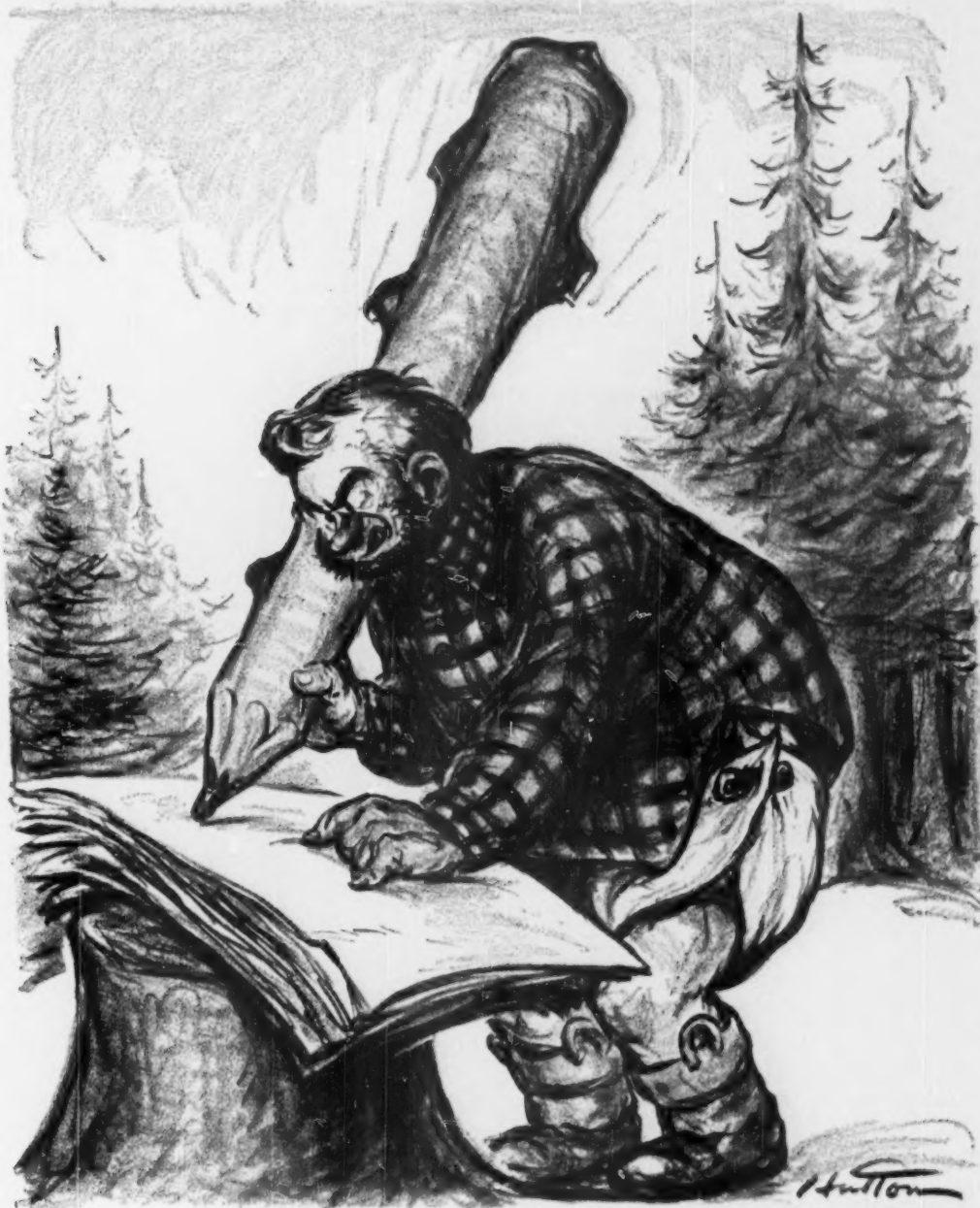
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After Paul Bunyan wrote out a gross of pencils on the letter "A" during his first day at school, he cut down a 12-inch pine, rammed out the heartwood, and filled it with lead. Six months later, he had mastered not only the entire alphabet, but also English Literature, Cost Accounting, and most of Integral Calculus.

A reproduction of this incident from the fabulous life of Paul Bunyan—the fifty-fourth of a series—will be sent on request. It will contain no advertising.

liquor burners on the front. The stoker and the side walls of the furnace were covered with fire resistant brick. During 7 hours continuous test, 4,300 lbs. of liquor of 52.1% solids was burned. The amount of steam delivered from the boiler was 10,400 lbs. per hour of 230 psi and 555°F. It corresponds to 2.4 lb. of steam per pound of thick liquor. CO₂ content was 13%. Unburnt in ash was 3.6% and in the flue gases nothing.

In the summary it is stated that the combustion results were quite satisfactory during the test.

Tests conducted in other plants have not given such good combustion efficiency. To be on the safe side, we usually calculate with 5% lower efficiency by burning sulfite waste liquor compared with burning coal on a dry basis. Also, if it is stated that it is possible to burn concentrated liquor without additional fuel, it is necessary to go up to 60% to 65% dry solids in order to be able to reach the same capacity that is expected by burning coal, and also introduce air-preheating to the highest extent. This refers to modern boilers with water cooled furnaces.

The other mills, Nos. 2, 3, and 4, also have been able to burn their liquors in the ordinary boilers with satisfactory results. Only the Lodbby mill had certain difficulties. This depends on the very big variations in boiler load of between 7,700 up to 26,000 lbs. per hour of steam. But this mill now has a specially designed furnace in successful operation. With this new design it seems to be possible to burn the liquor with sufficient efficiency with a comparatively low boiler load.

The burning problem itself does not seem to be serious and appears to be very easy to control. The CO₂ content can usually be kept higher under constant operation. Improvements in the burner and furnace design will probably also be made to get the highest combustion efficiency.

The ash problem has caused the least trouble to the four installations. Three of them have dust collectors. The fourth, Kvarnaveden, has such a small percentage of liquor fuel compared with coal in their boiler house so the ash from the liquor burning has not increased their ash problem considerably.

We have reason to expect at least as good result by burning sulfite waste liquor. Determination of settling velocity in one case indicates that ash from sulfite waste liquor probably can be collected to a higher extent than ash from pulverized coal. After the ash has been collected, it has to be disposed of and in this particular case the fly ash is mixed with water to form a slurry which can be handled by a pump.

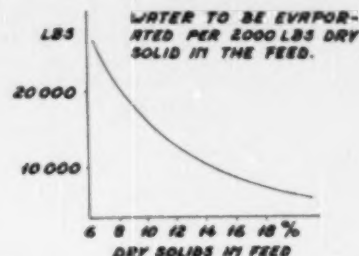
Finally, the sulfur in the flue gases has not given any trouble in these four installations. At the combustion 70% to 80% of the sulfur goes with the flue gases. This gives about 0.5% SO₂ in the flue gases which corresponds to 125-230 lbs. per ton of pulp. Considering that the sulfite waste liquor only represents a small part of the total amount of fuel for these mills, the content of sulfur in

EVAPORATION AND BURNING OF SULPHITE WASTE LIQUOR

NET FUEL SAVING AND EQUIPMENT COST

ASSUMPTIONS:

EVAPORATION FROM 9, 11 AND 13%
CONCENTRATION TO 52%.
HEAT VALUE 3300 BTU/LB
COAL HEAT VALUE 11700 BTU/LB
OPERATION TIME 7200 HRS/YEAR
ECONOMY BY 4 EFFECTS: 3.42
ECONOMY BY 6 EFFECTS: 4.82



EQUIPMENT COST

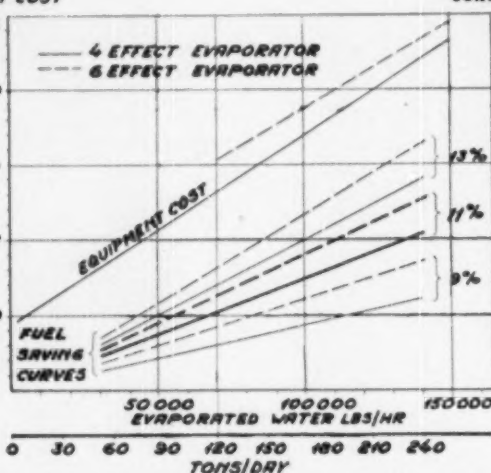
\$500 000

\$400 000

\$300 000

\$200 000

\$100 000



NET FUEL SAVING CORRESPONDING TO COAL TONS/YEAR

40 000

30 000

20 000

10 000

CORRESPONDING MILL CAPACITY IF 2000 LBS DRY SOLIDS PER TON OF PULP IS AVAILABLE IN FEED OF 11% TO EVAPORATOR

the flue gases is considerably lower than 0.5%.

Having bigger evaporator plants in mind, the Swedish Sulphite Waste Liquor Committee are studying the ash and sulfur problem. They have investigated the possibilities of absorbing sulfur in a scrubber by circulating water forming an alkaline slurry from the ash. The results of such experiments on an industrial basis are not yet available.

It is true that the burning ash, and sulfur problems grow with the size of the installations. More experience will be gained when the larger evaporators we now have under erection are in operation.

Yeast Research Financed

Research grants of \$2,000 each to the University of Minnesota and Michigan State college were announced by the Sulfite Pulp Manufacturers' Research League.

Minnesota will use its grant for research into unexplored values in the sulfite liquor torula yeast for practical feed rations, to be carried on by the division of poultry husbandry.

A large-scale preliminary study of the value of torula yeast in hog feeding will be made by Michigan State college. This work is already in process at the Jackson, Mich., prison farm. The divisions of animal husbandry, animal pathology and agriculture chemistry will do the research.

CALENDAR OF MEETINGS

Educational Graphic Arts Exposition—International Amphitheater, Chicago—Sept. 11-23
TAPPI-Testing Div.—Eastman Kodak Plant—Rochester, N. Y.—Sept. 13-15
TAPPI-Pacific Coast Section—Meany Hotel, Seattle—Sept. 13
SUPTS.-N. Y.—Canadian Div.—Chateau Laurier, Ottawa—Sept. 14-17
SUPTS.-Northwestern Div.—Hotel Schroeder, Milwaukee—Sept. 15-16
SUPTS.-Northeast Div.—Poland Springs House, Poland Springs, Me.—Sept. 21-24
SUPTS.-Connecticut Valley Div.—Red Lion Inn, Stockbridge, Mass.—Sept. 30
TAPPI-Engineering Conference—Netherlands Plaza Hotel, Cincinnati—Oct. 2-5
SUPTS.-Southern-Southeastern Div.—Geo. Vanderbilt Hotel, Asheville, N. C.—Oct. 12-14
TAPPI-Plastics Conference—N. Y. College of Forestry, Syracuse, N. Y.—Oct. 19-20
TAPPI-Alkaline Pulp Conference—Geo. Washington Hotel, Jacksonville, Fla.—Oct. 25-27
TAPPI-Fibrous Agricultural Residues Conf.—Northern Reg. Research Lab., Peoria, Ill.—Nov. 12-13
SUPTS.-Pacific Coast Div.—Longview, Wash.—Dec. 5
PAPER WEEK—APPA and Salesmen at Waldorf-Astoria, TAPPI at Commodore Hotel—Feb. 26-Mar. 1, 1951
SUPTS.—National Convention—Multnomah Hotel, Portland, Ore.—June 24-29, 1951
SALESMEN—Paper Industry—Midston House, New York City—Every Mon. noon.

Frozen-food packagers are

warming up

to wet-strength paper

Use **PAREZ®** Resin 607 for Dependable Wet Strength



Chalk up one more market captured by wet-strength papers—frozen foods!

Add that to the dozens of other markets where wet strength is a "must" in papers: wrapping papers for frozen food lockers, paper toweling, prepackaged fresh produce bags, barrel liners, potato bags, laundry tags, blueprint papers, wiping "cloths", table "cloths", napkins—to mention just a few.

And what does this all add up to? To a constantly expanding market for paper products if they are fortified with PAREZ Resin 607, the resin that imparts dependable, durable wet strength to many different types of papers.

So, strengthen your papers—and your sales—with PAREZ Resin 607! Call in your Cyanamid representative for consultation, or write for our Technical Bulletin on the excellent working properties of PAREZ Resin 607.

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- improved mullen
- less beating
- better fold
- less surface fibers

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Marathon Corp.

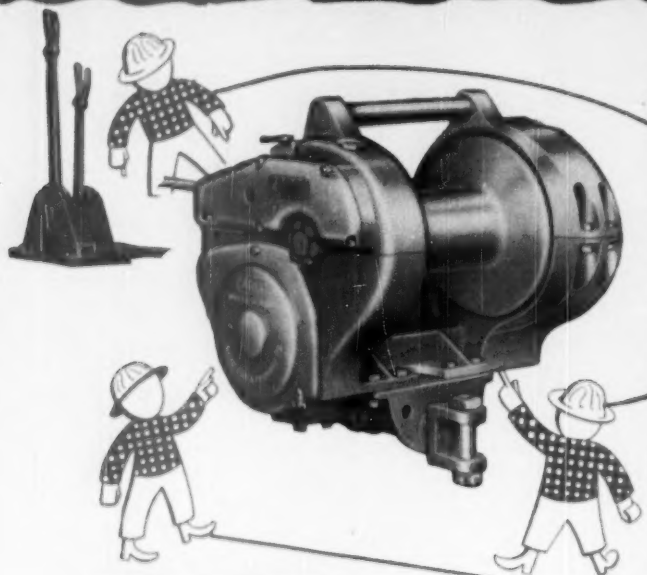
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Defoamers • Soda Ash • Caustic Soda • Salt Cake • Acids
Clays • AEROSOL® Wetting Agents • CALMICRO® Calcium
Carbonate • AZITE® Liquifier 900 • Sodium Phospho Aluminate
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NEW CARCO F WINCH

STREAMLINED CASE • CABLE CONTROLS • AUTOMATIC BRAKE



Cable Controls streamline for economy—Concealed push-pull cable controls clear your logging tractor fender of snag-catching projections. Vulnerable control rods are gone, and with them costly maintenance. Cable controls simplify winch installation, and give you a choice of lever stand position. Cables eliminate excessive linkage between control stand and winch. Only Carco has cable winch controls.

Automatic-brake streamlines operation—Essential for faster arch logging, and useful in all winching, the automatic brake lets the operator set his brake before pulling in the load. The brake takes effect the instant the tractor clutch is thrown out, preventing load drop or slip-back. Available at extra cost on the new Carco F Winch.

The Carcometal Case is streamlined to minimize winch and line damage. Drum flanges are shrouded, exterior nuts and bolts are flush with the case, and the case is smooth. The F Winch has been beefed up for strength, yet still weighs 415 to 285 pounds less than the other winches in its class. Less dead weight, lets you climb steep logging roads faster, improves your tractor balance.

CARCO

THE CARCO F WINCH has always been a leader in the woods. Now — the new F Winch with concealed control cables, automatic brake, and streamlined case sets a new pace in its class.

There is a Carco F Winch to match these crawler tractors: Allis-Chalmers HD7 and HD10; Caterpillar D6 and D7; International TD14 and TD18; Oliver-Cletrac DD and DG; and earlier models of all tractors in this horsepower range.

With standard or special gearing, the F Winch gives you a wide range of line pull capacity. Line speeds range from 35 up to 357 feet per minute depending on winch gearing and tractor. Write for additional information or see your tractor dealer.

There's a Carco winch or hoist for nearly every crawler tractor ever made.

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All across the North American continent, north to south and east to west, the industry is improving woodlands techniques and introducing large scale conservation, reforestation and mechanization.

REFORESTING SANS PLANTING

By Jack Rottier, Lake States Manager
American Forest Prod. Industries, Inc.

Making two poplar trees (also called aspen or "popple") grow where one grew before is the goal of an experiment in practical forestry being conducted by Northern Paper Mills on its 100,000-acre Tree Farm near Amasa, Mich. Paper manufacturers throughout the Great Lakes region, where poplar provides about 25% of the pulpwood supply, are watching the experiment with interest.

Bruce Buell, Route 1, Oneida, Mich., who is land manager for the Northern Paper Mills, is carrying out the experiment. He hopes to get the increased tree production without planting a single seedling. Planting can be an expensive process.

He is going about it with a two-ton Caterpillar tractor-drawn Athens disc plow. With this equipment, Mr. Buell is ripping up understocked sections of the Tree Farm. The heavy disc bites into the forest floor, cutting and tearing through a maze of aspen roots. Severed roots, Forester Buell believes, will sprout and grow into new trees.

In addition to that the heavy disc plow opens up the forest floor, leaving it in better condition to receive and germinate wind-blown seed. The cultivated ground also holds moisture better.

"Win, lose or draw," says Mr. Buell, "we can't lose. Even if the experiment fails to bring about natural reproduction from sprouts and seeds we hope for, it will leave the land in better shape for planting."

Initially the Northern Paper Mills' experiment involves 50 acres of land. If results are good, the company will extend discing to about 10,000 acres of understocked timberland. Results of the first year's discing will be apparent this fall.

Once despised by the wood-cutting industries, poplar in recent years has become one of the Lake States' leading pulpwood species. The Northern Paper Mills' experiment in encouraging poplar reproduction is in striking contrast to accepted forestry policies of a few years ago when efforts were made to eliminate poplar from second growth timber stands.

Paradoxically, poplar is the only tree whose reproduction is encouraged but yet is never planted commercially. Although the Northern Paper Mills relies on poplar



BRUCE G. BUELL, Forester for Northern Paper Mills of Green Bay, Wis., and manager of its 100,000-acre Tree Farm near Amasa, Mich., is shown here holding a poplar (popple) root which has been cut by disc used in experiment to stimulate tree growth. It is expected that the cutting of poplar roots will result in new sprouts being sent out and growth of a new crop of trees.

for 60% of its pulpwood supply, the company will plant balsam or spruce seedlings in the event the discing experiment fails to bring about the expected poplar reproduction.

Paper industry and timberland managers in the area have high hopes that the experiment will prove successful. At a joint meeting held recently in St. Paul, representatives of 11 Lakes States mills decided to continue the discing experiment on their respective Tree Farms this summer. These projects are to be carried out in conjunction with other experiments and studies relating to silviculture and forest management problems.

The two-ton Athens disc plow being used by Northern Paper Mills is built in two sections with four discs in each. It is sturdy enough for use on even the most rugged Upper Michigan forest terrain. Unlike a moldboard type plow, the

disc opens up but does not turn over the soil. This is ideal for a forest area where the top soil is usually most fertile and best suited for germinating seed.

The U. S. Forest Service has used the Athens plow extensively for building fire lanes and for preparation of land for tree planting. In the Superior National Forest of Northern Minnesota the plow has proved to be extremely useful in controlling brush. The Amasa project, however, is one of the first times the implement has been extensively used to encourage natural reproduction of aspen.

The Northern Paper Mills began selective logging on their Northern Michigan timberlands in 1930. Since that time their operation has been an outstanding example of forest management. When Michigan joined the American Tree Farm System in 1949, the company's Amasa properties were among the first to be certified.

Today their roadside Tree Farm signs are an inspiration to motorists as they drive through Northern Paper Mills' Upper Peninsula properties. Good forest management practices carried out by the company are also providing other Northern Michigan timberland owners, particularly farmers, practical lessons in how to grow trees as a cash crop.

Forester Buell's discing experiment to stimulate poplar growth may prove to be an all-important step forward in this tree growing program.

Northern Mills Counting On More Poplar Pulp

A PULP & PAPER editor, on a recent visit to Green Bay, Wis., learned that Northern Paper Mills is counting on fast-growing poplar (or aspen or popple, as it is often called) for its principal raw material for the two new Beloit machines it is adding next year—adding 90 tons tissue production and bringing the mill total to 250 tons a day. Poplar makes a softer pulp and tissue when added to spruce and balsam fir.

In preparation for this growth, Northern Paper Mills has both ownership of acreage and cutting rights in Ontario timberlands. The Michigan Tree Farm, mentioned in the preceding article, has



VIEWS AT NORTHERN PAPER MILLS (of Green Bay, Wis.) tree farm where reproduction has been successfully and economically fostered without the expense of individual tree planting. These pictures were taken on its 100,000 acres of timberlands near Amos, Mich.

1—STAND OF HARDWOOD that was logged selectively in 1935. As picture shows, a very nice stand of timber was left on the ground, and after 17 years of growth a good merchantable cut in another few years is assured.

2—A CATERPILLAR D-4 TRACTOR pulling an Athens disc plow. Northern Paper Mills furnished the tractor and did the work on this discing experiment to stimulate tree growth. The U. S. Forest Service loaned the disc. This shows how disc tears up areas which had been rendered virtually useless by nature and man, thereby preparing a seed bed.

3—STAND OF YOUNG POPLAR 18 years after original stand was clearcut. In many cases poplar sprouts in this manner resulting in perfect reproduction. In some cases, however, it does not do so. It is hoped the discing experiment will result in such stands as these. Slicing poplar roots with the disc is expected to result in rapid sprouting of more trees. Bruce G. Buell, Northern's Forester in charge, is in the picture.

Wood Leftovers Figured In Northeastern Washington

Nearly 10 million cubic feet of unused wood resources that could be utilized economically are available in five counties of Northeast Washington, the State of Washington Institute of Forest Products, Seattle (Ralph G. DeMoisy, technical director) reports in an official bulletin. The survey covers Ferry, Stevens, Pend Oreille, Lincoln, and Spokane Counties. Logging leftovers, the bulletin reports, amount to 6,168,000 cu. ft., manufacturing leftovers to 3,600,000 cu. ft.

Minnesota Joins Tree Farm System

With certification of 76 well-managed and privately owned forest areas totalling 4,199 acres, Minnesota has become the nation's 28th Tree Farm state. Ceremonies launching the Tree Farm program were held at Boy Scout Camp Lawrie in Carlton county, 63 miles west of Duluth. The North Star Council, Boy Scouts of America, owns the 150-acre Camp Lawrie property.

Minnesota is the third Lake State to enter the American Tree Farm system.

an annual growth of about 6,000 cords of spruce and balsam; 8,000 cords of poplar or aspen; and 8,000 cords of various hardwoods and other woods. About 40% of the 100,000 acres is sawlog timber—maple, birch, hemlock, elm, pine, etc., sold on open market. The remaining 60% for the paper mill is spruce, balsam and poplar with spruce accounting for 30%.

Big news in Lake States, this magazine found, was encouragement being given now to growing poplar or aspen. The one-time weed tree is popular—needed for the new semi-chemical pulp plants built and being built in both Wisconsin and Michigan as well as for other pulps.

Woods Division Chief



Rae L. Johnson (in picture), for the past seven years chief engineer of the woods division, Weyerhaeuser Timber Co., and a member of that organization since 1928 when he joined the Longview branch, has been appointed

manager of the woods division of the new Columbia Cellulose Co. at Watson Island, B. C.

Columbia Cellulose Co., a subsidiary of Celanese Corp. of America, is building a large dissolving pulp mill near Prince Rupert. Mr. Johnson will be responsible for development and operation of the company's forest management license from the British Columbia government, covering about 400,000 acres of mature and 200,000 acres of immature timber.

Pulpwood Test Results of Gaylord Slash Pine

Pulpwood bolts taken from the 22-year old slash pine plantation of Gaylord Container Corp., Bogalusa, La., showed no differences in density between fast and slow growing trees, according to a study conducted by Southern Forest Experiment Station. The study showed peeling of pulpwood to have an advantage in long storage periods. The report covered tests made with wood cut in July and Oct. 1948, and in May, 1949, and stored in the mill yard.

For unpeeled slash pine, losses in specific gravity after 4, 6, 9 or 12 months of storage were about 7, 9, 10 and 12%, respectively for July-cut bolts; and 3, 6, 10 and 15% for October-cut bolts. It appeared that about 4 months of storage of July-cut bolts and 6 months of storage of October-cut bolts would usually result in rather minor losses.

Missouri Forests Surveyed

Missouri's commercial forest land could support five times its present volume of sawtimber and provide additional income for landowners and forest industries, according to a report of the Central States Forest Experiment Station and the University of Missouri Agricultural Experiment Station.

At MANDO
American DiesElectric*
Locomotive Cranes

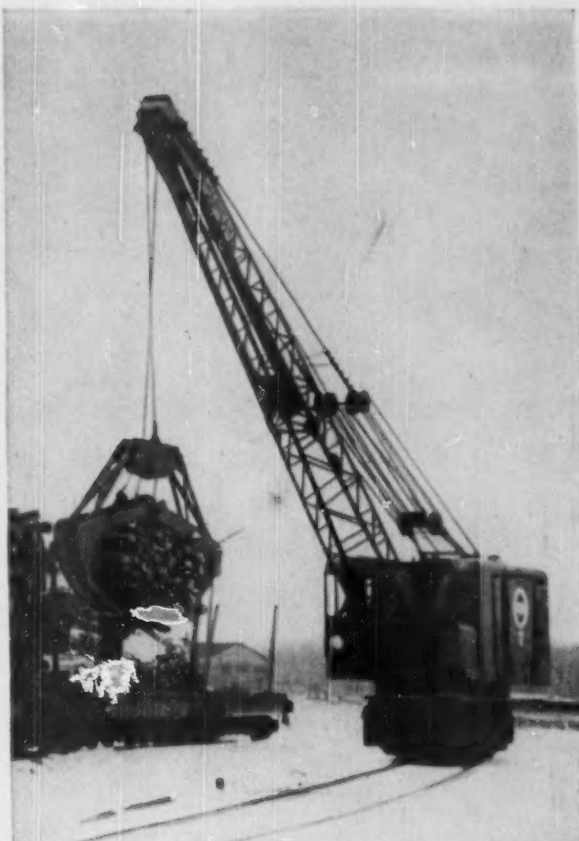
**"Do twice the
work at half
the cost!"**

They think in big figures, at Minnesota and Ontario Paper Company. When they proved to themselves that American 40-Ton DiesElectric Locomotive Cranes cut fuel costs in half, and doubled work output per crane, they saw *big savings* involved.

As a result, Mando is now replacing all steam cranes with swift, efficient American DiesElectrics . . . one for two. Each of the new machines handles about 30 carloads of wood on an 8-hour shift. One man runs each crane. There is no time out for steaming up, or for coal or water stops.

Do these figures make yours look out of date? Mail the coupon below, for facts on modern material handling.

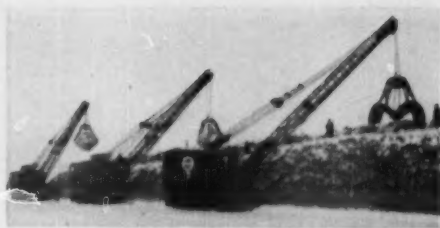
*Diesel-Electric Locomotive Crane Patent No. 2083460.
Teeth Control Patent No. 2370856.



FAST AND VERSATILE, these cranes handle car switching and many other jobs. This one is installing a 30-ton turbo-generator.



300,000 CORDS of pulpwood in the world's largest pulpwood storage facility. Mile-long yard contains 42 storage racks, 20 feet high, served by both truck and rail cars.



THREE DO THE WORK OF SIX! The American 40-Ton DiesElectric shown here are doing work of six steam cranes. Each "bite" moves about three tons of wood. The 50 and 55 foot booms make a simple task of piling the pulpwood to a height of 20 feet.

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ONE OF THE HEAVIEST FOREST AREAS IN U. S.



1. AN ILLUSTRATION OF RESULTS OF PRE-LOGGING, RE-LOGGING AND SETTING ASIDE OF SEED BLOCKS in Weyerhaeuser Timber Co.'s Vail Tree Farm which serves pulp mills and sawmills. It is in Lewis County, Southwest Washington—one of the three most heavily forested counties in the United States (the other two are in Oregon).



2. (Left to right): W. A. TINNEY, Washington Forester of the Forest Conservation Committee of the Pacific Northwest Forest Industries; VINCENT BOUSQUET, Branch Forester of Weyerhaeuser's Vail and MacDonald Tree Farms; and W. D. HAGENSTEIN, Chief Forester of the previously mentioned committee.

3. GUNNAR SWANSON, a Weyerhaeuser camp foreman.

The above view of saw and pulp timber lands in Southwestern Washington is a good illustration of the modern techniques of pre-logging, re-logging, and the planned setting aside of seed blocks and strips for new timber crops.

These pictures were taken on Porcupine Ridge in Weyerhaeuser Timber Co.'s Vail Tree Farm. This is one of the three most heavily forested counties in the U. S. The others are Douglas and Lane in Oregon. Roseburg, center of the most intensified lumber development, is county seat of Douglas. In Lane, Weyerhaeuser built its new industries, including a containerboard plant.

The Vail Tree Farm, in the above picture, and the nearby McDonald Tree Farm, both

Weyerhaeuser's, constitute 270,000 acres in four Southwest Washington counties including Lewis. Only five years ago logging methods here were changed from railroad and steam skidder to truck and tractor logging. From the two farms 200 million bd. ft. (equivalent to 400 cords) are harvested in an average year. There is a network of 500 miles of roads for harvesting and forest protection.

Behind each woods employe is an investment of \$8,000 in physical plant and equipment. Due to prelogging of hemlock understory for pulpwood and sawlogs and to the re-logging of new and cutover lands for merchantable timber, only an estimated two cords per acre of useable wood are left on the logged lands, too costly or impossible to take out with present methods.

World's Largest Aerial Forest Spraying Completed

What is considered to be the world's largest aerial forest-insect spraying project concluded in mid-July with a total of 960,000 acres sprayed in Oregon and Washington for control of spruce budworm epidemic. This was a cooperative project involving federal, state, county

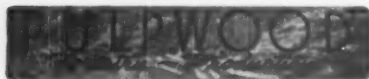
and private ownership, carried out in about one month at cost of approximately \$1,000,000 (little over \$5 per acre) and involving use of some 75 airplanes.

The Oregon state forest service sprayed 508,000 acres of the total and U. S. forest service sprayed the remaining 452,000 acres, treating forest lands within their project areas regardless of ownership.

Ownership of treated timber lands consists of about 60% federal and 40% private and state ownership.

Spray consisted of insecticide formulation of DDT, fuel oil, and solvent—one pound of DDT per gallon of solution and applied to infested areas at rate of one gallon per acre. The greater portion of insecticide was furnished by Pennsylvania Salt Manufacturing Co. of Washington, Portland, Ore. Reports of areas treated early in this year's project indicated kills up to 99%.

FRANK O. HARTWELL, former president of Holyoke Card & Paper Co., Holyoke, Mass., died July 6. He was 72.



— MEETINGS —

Society of American Foresters—
Golden Anniversary Meeting—
Mayflower Hotel, Washington,
D.C.—Dec. 13-16.



Puget Pulp is among the leaders in forest conservation—not only through planned logging and reforestation, but through more complete utilization of the logs. Modern hydraulic barkers and chippers get about 20% more pulp out of a given amount of wood, and "waste" liquors are made into industrial alcohol and its by-product, Lignosite, a valuable material used in improving concrete and for many other purposes. Here efficiency and ingenuity safeguard America's natural resources.

PUGET SOUND
PULP & TIMBER COMPANY
BELLINGHAM • WASHINGTON

NEWSPRINT HEARING

Testimony Sets Celler on Heels-- Industry Is Cleared for 6th Time



The newsprint hearing held in Washington by Chairman Emanuel Celler's (shown in picture) subcommittee of the House judiciary committee was over, and between the Wall Street Journal and the Editor and Publisher, the public could take his choice. The Wall Street

organ called it a "flat bust" and Editor and Publisher quoted Congressman Celler as threatening the newsprint industry with controls and stating that the stand of R. M. Fowler, president of the Newsprint Association of Canada, was "hogwash!"

The public took no choice, being busy and worried and watching headlines that buried Mr. Celler in his own subject. Wall Street wasn't quite accurate, for the hearing revealed the weight of the argument, gave an overall picture of the problems of supply (unwitting result), and appears to have cleared the industry for the sixth time in Washington. Basis for the hearing was the Congress's "Study of the Anti-Trust Laws."

The level of Congressman Celler's reply compared with Mr. Fowler's statement was significant, and the newsprint industry went back to work, the Canadians faintly irritated, and some of the U. S. leaders having had a say on their own.

The Canadians were irritated, a word supplied by our editor in Canada as a capsule description. A brief quote from Mr. Fowler's reply to some questions from a publishers' group:

"The similarity between the American accusations of 1943 and 1944 and the things Americans are saying again today are striking, and the absence of any justification or sound purpose is also as pronounced today as it was in the war years. Such things are folly for all concerned. Certainly they can get us nowhere, and can do nothing to solve the real problem of newsprint supply for U. S. consumers.

Mr. Fowler very logically pointed out that the American newspaper publishers themselves had no idea that demand this year would reach almost six million tons. He said:

"If future consumption of newsprint is beyond forecast, I suggest people in the U. S. may well stop blaming Canadians for failing to do something they cannot do themselves. Canadian manufacturers



ROBERT M. FOWLER,
President and Administrator for Canadian Pulp and Paper Association . . . he spoke once for Canadian mills and then polite silence . . .

have always shown themselves ready and able to respond to increases in U. S. needs." Mr. Fowler pointed out that Canadian newsprint capacity was increased by almost 600,000 tons since 1946 and could be increased by at least 200,000 tons a year in the immediate future."

Some of the news of supply had been kept fairly quiet from the general public. Albin Caspar, sales manager of Great Northern Paper Co., described his company's "conservative growth"—described more in detail in this issue. August B. Meyer, of Bowater's, rocked the committee back with outlines of his Newfoundland mill's tremendous expenditure to raise supply.

May Aim Legislation at Canada

Yet as we go to press there are persistent rumors of bills—at least one of them is in Emanuel Celler's head—to force the producing of a Canadian subsidiary's records.

Everybody was making trouble, which meant more news, and publishers were demanding more newsprint. But it is interesting that by and large no big publishers rushed to testify, and Congressman Celler was unable to get the support he probably counted on most.

On the stand Mr. John P. Hinman, president of International Paper Co., said when questioned as to the subsidiary, Canadian International Paper Co.: "I have worked in the pulp and paper industry all my life, and spent four years in Canada as president of Canadian International Paper Co. From this experience I want to tell you as emphatically as I can that the Canadian character of our newsprint subsidiary, and its own subsidiaries in Canada, is the real thing. We simply have to have the newsprint production handled by a Canadian company with a Canadian board responsive to sentiment and opinion where the work is done."

As to the attitude of the Committee, Mr. Hinman did not think much of it. He

said he had heard men talking as if Canada were Russia, and aside from sentiment he pointed out that Canada bought more from the U. S. than all South America.

The double problem of the non-integrated mill was outlined by Karl Clauson, executive secretary, American Pulp Consumers, who educated the committee considerably on various types of mills. Purpose of his organization was, he said, to promote and encourage pulp supply. He was positive consumer mills were in better shape than 1937, a year the committee designated, because "although a smaller percentage of the industry, we are in a better competitive basis." And asked if he felt there was an inadequate supply of pulp Mr. Clauson said not at all. But he said he believed there was a very large future in the market pulp industry, in the way of expansion.

Hearings Deter Production



J. D. Zellerbach (in picture), president of Crown Zellerbach Corp., testifying July 18: "I am led to comment, however, that there is a large stand of government-owned timber within the present boundaries of the Olympic National Park. Without disturbing an area in this park more than adequate to serve recreational needs of the public, a very substantial portion of this stand could be made available for the production of newsprint and other paper grades, and lumber, under fully supervised conservational cutting requirements of the U. S. Forest Service."

Mr. Zellerbach, continuing: "An important factor in our decision regarding newsprint production was the attitude of the government agencies respecting this field of our activities. This investigation is the fifth since the war . . . there were those of the Boren committee, the Capehart committee, the Brown committee, the Department of Justice, all of which preceded the present investigation. We recognize as citizens that these government agencies have a perfect right to investigate, but we believe that the committee will also appreciate the fact that the time, effort and expense necessitated by these investigations is a further deterrent to any



So says Fred Scott, independent pulpwood producer for the Brunswick Pulp & Paper Company, about his International I-4 wheel tractor. And Mr. Scott says, "I haven't spent \$10.00 for repairs and maintenance on this I-4 in two years. It saves us a lot of money and gets the job done."

As pulpwood producers everywhere are learning, this is no unusual story. International wheel tractors fit perfectly into hundreds of

pulpwood logging operations. They're fast, maneuverable and thrifty—the ideal combination to mechanize your pulpwood operations for steady, year 'round production.

Let your International Industrial Power Distributor help you select the right size International for your pulpwood operations. You'll find Internationals are "just what you need," to keep your quota deliveries up and to cut costs and deliver the goods.

INTERNATIONAL HARVESTER COMPANY • Chicago

**Standardize
on Power
that Pays**



**INTERNATIONAL
INDUSTRIAL POWER**

CRAWLER TRACTORS • WHEEL TRACTORS • DIESEL ENGINES • POWER UNITS

expansion of our activities in newsprint production."

Chairman Celler, Congressman (D) from New York: "You do not mean that, Mr. Zellerbach?"

Mr. Zellerbach: "Yes, I do. I definitely do."

Chairman: "You mean your coming here definitely retards newsprint production?"

Mr. Zellerbach: "I do, definitely. This is a deterrent."

Chairman: "You want that statement to stand?"

Mr. Zellerbach: "Yes, sir. I do."

Chairman: "Without any change?"

Mr. Zellerbach: "I do."

Chairman: "I am perfectly agreeable to letting it stand without any kind of change whatsoever."

Mr. Zellerbach: "Very good! I have considered this very carefully."

That was just one of many unexpected answers Congressman Celler got during his much pre-publicized hearings on the newsprint industry. It rocked Mr. Celler, for he seemed unable to believe his ears.

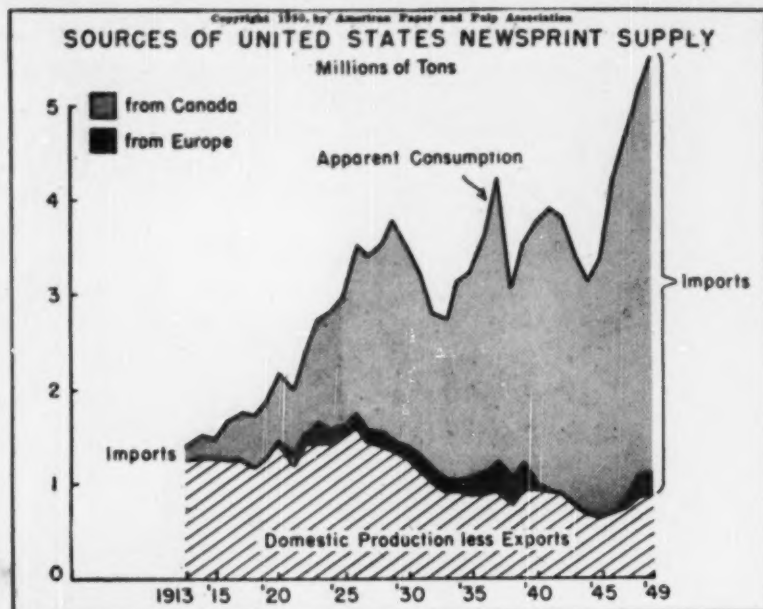
Back from Italy, where he finished his assignment as ECA chief, Mr. Zellerbach spent a whole week in Manhattan, posting himself on the hearing. Then he cooled his heels in Washington four days, it was reported, just waiting to be called to the stand. Then he flew to San Francisco to get some work done and flew back again at Mr. Celler's bidding.

Although Mr. Zellerbach was first in 30 days to explain the shortage of newsprint in terms of Congressional investigations, he echoed the thoughts of several who had been more specifically confined in the questioning. Nowhere did Mr. Celler and his men find anybody running for cover, equivocation, or avoidance of fact.

Meanwhile, in July, Mr. Celler joined seven New York Congressmen (out of 35, including Marcantonio) to vote against a bill which would allow Department of Justice to jail alien Communists.

Several times, from June 19 to late July, the Celler committee stalled for lack of witnesses. Mr. Celler attempted to bring important publishers down; all were recalcitrant. Said a hard-bitten reporter for a Washington daily, "Boy, when newspaper publishers won't testify newsprint's too high that's the day!" Plainly publishers knew the o'clock. Mr. Celler was losing headlines to the boys in Korea. The publishers by absence indicated they'd take newsprint from Canada at Canada's price and glad to get it (advertising lineage boomed up 12% in June—another good reason for newsprint shortage), they were buying spot shipments of Scandinavian at higher rates and pulp was getting tighter by the minute.

*Although a PULP & PAPER editor attended certain sessions of the hearings and interviewed many participants, quotations used are from 286-page transcript by National Affairs Bureau, Washington, an accepted verbatim report issued for reference work. In interests of accuracy and standard form, this is used in quoting witnesses, rather than notes or recollections.



ON THE EVE OF THE CELLER COMMITTEE HEARING, the American Paper & Pulp Association issued a timely warning that one sure way to limit our supply of newsprint is to tinker with the tariff. A tariff on newsprint would certainly drive Canadian manufacturers into higher quality grades. Why buck a tariff with a low grade product when Canadian mills have the brains and equipment to make just as high quality paper as anyone?

The above chart—copyrighted by APPA—tells the story of newsprint at a glance. In 1913, the U. S. furnished 89%—Canada, 11%—for U. S. press. In 1914, the U. S. mills produced 16%, Canada, 81% and Europe 3%. In 1913, tariffs were removed on newsprint. The industry fled the U. S.

Between 1913 and 1949, U. S. newsprint consumption quadrupled to 5½ million tons; Canadian production grew 13 times; U. S. production fell to only 70% of 1913. It was down to 56% in 1945.

The APPA says investment in newsprint in the U. S. became so unattractive that the only mills built in recent years have been financed by Southern publishers as a hedge against shortage. Says APPA:

"As an example of the change in the relative stature of the U. S. newsprint industry it is interesting to note that in 1914 newsprint was 25% of domestic paper production while in 1948 it was less than 4%."

"It takes years and millions of dollars to build paper mills and this situation cannot be reversed. Far better or far worse the U. S. by reason of abandonment of the tariff on newsprint in 1913 has 'exported' its newsprint industry to Canada and barring a reversal of tariff policy no change in that position seems likely. But one way to limit the supply of Canadian newsprint coming here would be to make changes in our present tariff structure that would induce Canadian newsprint manufacturers to shift to other grades for export to this market."

Pulp Producers Testimony

There were those who felt Zellerbach's testimony could form the basis for appeal from such aimless investigating in future danger periods. Appearance of pulp producers at the newsprint hearing was heralded early as files of U. S. Pulp Producers were taken to Washington. James Ritchie, executive secretary, Oliver Porter, whom he succeeded, were put on the stand. Mr. Ritchie's opening statement on the method, purpose, and use of statistics was clear and direct, stood up under close questioning by Mr. Levi. Mr. Ritchie diagrammed bluntly why no single mill figures were revealed, why they couldn't and wouldn't be.

Oliver Porter, since he was author of most

correspondence from the USPP, traveled a rougher, longer road than his successor, as Investigator Levi produced letters and replies, read out dates and names and situations. Into some of these he tested inferences from the record, but Mr. Porter cut into them with an insistent chop that left no doubt on the record.

Alaska Timber Discussed

The salty theory of Capt. M. P. Olson, widely known west coast tug skipper of Vancouver, B. C., and long ago a pulp mill engineer, clearly impressed the committee and many industry men to whom offhand he appeared to offer a simple method of newsprint supply. Capt. Olson has for years advanced to Congress, publishers, any interested citizens, that logs be towed from Alaska to the States for manufacture into pulp and paper. To those not close to the Alaska picture it makes sense. But its seeming impossibility is accepted by all organizations who ever planned an Alaska project and are familiar with government and Forest Service policies requiring the processing of Alaska timber in Alaska—including Ketchikan Pulp & Paper Co. whose timber contract fulfillment has been extended into 1951. A mill project for Sitka (900 miles north of Seattle) hasn't been abandoned.

Even though it's proven by test that long log tows of low cost by diesel tug and semi-cigar type raft are as feasible from Alaska as from British Columbia, there seems no likelihood of a weakening of Forest Service order that no raw logs may leave Alaska except possible temporary wartime releases for lumber as happened in the last war. And even though they know Capt. Olson's plan will work, no mill is

So There Is NOT a Shortage

Excerpts from an editorial in
Editor & Publisher, July 29:

"Rep. Emanuel Celler told E & P there will be early official action setting up priorities on distribution of newsprint due to the Korean situation. . . . This statement is either: 1. A hysterical misinterpretation of the actual newsprint supply and demand picture; or, 2. A warning that mobilization in this country and Canada will soon cut into supplies of pulp, power and manpower curtailing newsprint production. This is a notion that must be fought vigorously by our newspapers. They do not have to apologize to anyone for their record of cooperation with the War Production Board during the last conflict when rationing was absolutely necessary. But they do not have to submit to such controls at this time when they are not only unnecessary but dangerous."

LOOKING TOWARD
PERMANENCY OF
FOREST CROPS...

with a policy based upon growing,

protecting and harvesting of trees.



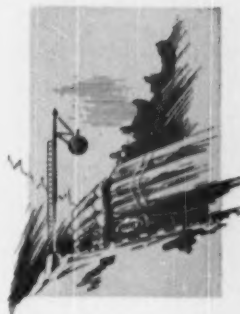
Seed blocks
restock cutover land.



Spotter plotting
a fire location.

THE WEYERHAEUSER forestry policy is based upon the *planned* growing, protecting and harvesting of trees . . . looking toward permanency and more complete utilization of the forest crop.

The Pulp Division, Weyerhaeuser Timber Company, derives much of its wood supply from pre-logging which takes out small trees that may be damaged in falling large ones . . . and re-logging which utilizes the left-over chunks and slabs. Using these advanced "harvesting techniques" plus hydraulic barking of logs, Weyerhaeuser mills are utilizing the forest crops more completely than ever before, insuring the reliability of the Pulp Division as a continuing source of supply.



WEYERHAEUSER



JAMES L. RITCHIE,
Executive Director, U.
S. Pulp Producers As-
sociation—the pulp
men opened their
open story through
him

anxious to risk territorial opposition by advocating cancellation of the Forest Service "no logs" policy. The Alaska governor supports this view, the Alaska delegate to Congress, also Northwest Congressmen. Two others are in strong support of manufacturing raw materials in the area—labor and the military.

Twenty years ago or more Capt. Olson's intelligent and practical plan was met with hardly more favor, for then Alaskans had already shown fight against freight rates and the canners and miners. But the skipper's belief that mill and other costs cross out mills may no longer be valid in face of inflation, demand, timber supply. Same power that brought Celanese and others close to Alaska's boundary will take mills to Alaska, say the experts. Ketchikan Pulp's project is said to create an estimate at lower per ton cost than some B. C. mills, with perhaps savings in new processes. Over and above everything is the coast pulp industry's recognition of the necessity for becoming good citizens of Alaska, its modern salmon and mining people. However sincere his long campaign, the towboat man is reviving a conception of western raw materials not seen for 20 years.

It seemed to some that the committee returned ashore from Capt. Olson's cruise regretfully to resume contact with 1950 and the newsprint industry as reflected by quiet Great Northern Paper Co. Albin Caspar, vice president, accompanied by Fred W. Mears, assistant sales manager, had no interest in reaching out of Maine for logs, or in rafting logs into Boston harbor for newsprint.

As well as Capt. Olson, the witnesses for this firm knew the value of simplicity, economy, and sufficient production. Great Northern's focus on a single product, the almost fanatical theme of the founder, had served to make the Maine outfit a veteran and a survivor with its own record of increased supply (see cover and story this issue) in the U. S.

Hinman Says Competition In Canada is "Vigorous"



John H. Hinman (in picture), president of International Paper Co., New York, testified before Celler subcommittee that removal of tariffs in 1913 helped drive newsprint operations of his company from U. S. to Canada. He added:

"But the simple truth of the matter is that Canada is an economic place

to produce newsprint . . . we should be glad that Canada has a product which we want very much . . . surely we as a nation want to trade with her . . . surely we are not afraid of Canada."

Mr. Hinman said competition is "vigorous" among the 37 companies operating 138 machines in 37 Canadian newsprint mills.

NEWSPRINT IN THE SOUTH

By **Arthur G. Wakeman**

Executive Vice President, Coosa River Newsprint Co.



(From testimony by Mr. Wakeman, shown in picture, before congressional subcommittee on study of monopoly power in Washington, D. C.)

I think there will be a few mills built in the South to manufacture newsprint but there are other grades that are also in short supply that are much more profitable and can be made without the enormous capital investment required for a newsprint mill. Of all the grades of paper or paperboard that are produced in large volume, I do not know of any that require quite as high an investment per ton of product as newsprint. This is again due to the enormous amount of power required and the high cost of this equipment. I do not know of any other product such as steel or textiles that require as high a dollar investment per ton of product or as high a dollar investment per man employed. A Southern newsprint mill will cost about \$40,000 for every man employed in the plant compared to about \$8,000 for a textile mill.

Finding a suitable location for a newsprint mill in the South is very difficult because the site must meet the following requirements:

1. Plenty of water for paper-making and a method of disposing of the effluent.
2. Cheap power.
3. An adequate wood supply.
4. Good transportation facilities.
5. Close proximity to a town.

There are not very many desirable places left in the Southern states where all these can be found together.

Another problem with Southern newsprint mills is that they have to make some other product besides just newsprint to be economically sound. The reason for this sideline that has to go along with newsprint, is that the chemical pulp mill to be a low cost project has to be built to a size larger than that needed for just the newsprint. The excess pulp over and above what is needed for the newsprint mill has to be put into some other line. The northern mill can use the sulfite process which can be built in small units and still be fairly economical in its operation. The Southern mill must use the sulfate process which takes a large and very expensive unit.

After eliminating from the total cost of our project that portion of the investment relating to the excess of the sulfate production not required for newsprint production, the remaining cost was approximately \$80,000 of capital investment

per daily ton of newsprint capacity. This does not include any substantial amount of working capital nor investment in woodlands nor in power plants or water preparation plants. If to our actual cost, properly to be allocated to newsprint, there were added the investment ordinarily required for working capital, woodlands, power installation and water treatment, it would mean an investment in excess of \$100,000 per ton of daily capacity to build a newsprint mill at today's construction and equipment prices. That means an investment of from \$80,000 to \$100,000 to produce a product which in a year, at approximately the present price of newsprint, would result in aggregate sales of from \$30,000 to \$35,000. In the light of the hazards which have been evidenced in the past in the newsprint industry, it is not surprising that the private investor is not too anxious to invest in a new enterprise requiring such a high ratio of investment to output.

A further and very important factor in limiting the expansion of newsprint production in the South or anywhere else in this country is the tax situation. Newsprint manufacturing is not an attractive investment for the private investor with money to put into some new venture.

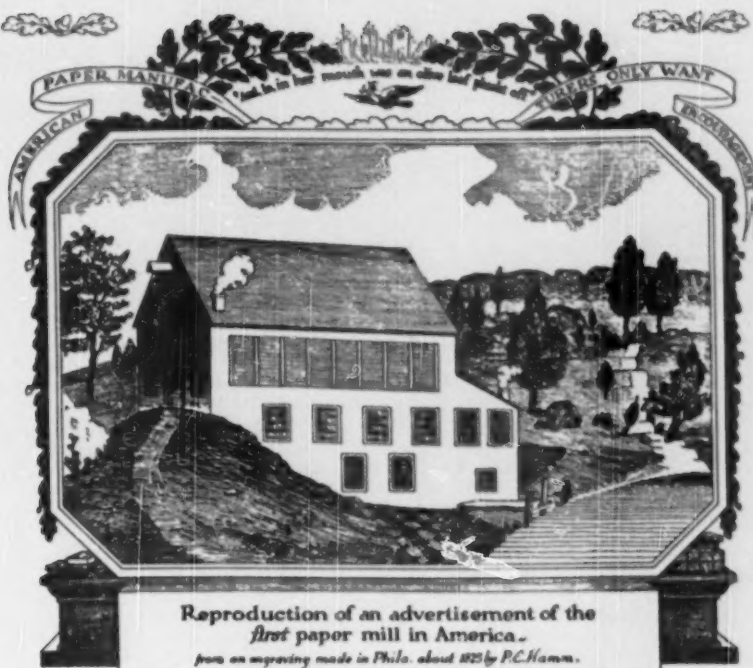
North and South Costs

The price per cord of Southern wood has generally been lower than the price per cord of the Northern wood, (except perhaps in British Columbia) but this does not mean that a comparison based purely on wood price is justifiable. No comparison is justified short of the full cost off the paper machines and at that point Northern and Southern costs are reasonably comparable.

Northern wood is softer, not as dense and has shorter fibers which are smaller in diameter than the Southern wood. This characteristic makes Northern wood easier to refine in preparing it for the manufacture of newsprint. This difference in the necessary preparation and the difference in the cost of power to prepare the two woods are the items that have to be taken into consideration. Due to the low cost of hydro-electric power in the North compared to the high cost of power in the South there is no appreciable advantage of a Southern operation over a Northern one. In fact there are very few locations in the South where a newsprint mill can be built, in which the final cost of wood, ready to go to the paper machines, will be as low as the Northern mill that is serviced with a good low cost hydro-electric plant.

New Mill for Ireland

A new paper mill is to be built on the River Suir, in Waterford, Ireland, and will produce mainly cardboard products. Proprietors are the National Board and Paper Mills, Ltd.



Courtesy The
Historical Society
of Pennsylvania

According to reliable historians, the first paper mill in America was established in 1690 near Germantown, now part of Philadelphia, Pa., by William Rittenhouse, William Bradford, and others.

Too bad Bradford and Rittenhouse couldn't use **PENNSALT LIQUID CHLORINE**

Credit these paper pioneers with a job well done—in view of the conditions under which they worked! Without chlorine, and other essential chemicals, the excellent processed papers of today were far beyond achievement of these early manufacturers.

Many pulp and paper mills throughout the nation now rely on Pennsalt Liquid Chlorine for

Bleaching of wood pulp and other papermaking fibers.
Slime Control in pulp and paper mill process water.

And these mills use Pennsalt chlorine with confidence. For just as Bradford and Rittenhouse were pioneers in the paper manufacturing industry of this country, so has Pennsalt pioneered in the production, handling, storage and shipment of chlorine.

In fact, the first tank car of liquid chlorine ever to travel American rails left Pennsalt's Wyandotte plant in the year 1909. Today, thousands of tons are shipped

yearly in tank cars, both single and multi-unit, and in cylinders...from conveniently located plants in
Portland, Ore. Tacoma, Wash.
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Backing up its chlorine production, Pennsalt continues through intensive research to help improve chemical processes within the pulp and paper industry. Competent technical service from a Pennsalt representative is at all times available upon request.

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Progressive Chemistry for a Century

NEWSPRINT MILL IS ASSURED

Another New Plant for Pacific Coast

As predicted here last month, official announcement of plans for a 250-300 ton (day) mill at Duncan Bay, B. C., has been made—but product will be newsprint instead of dissolving pulp. Construction starts almost immediately. Site near Campbell River, east coast of Vancouver Island, is being cleared. Elk Falls Co., Ltd., is name of new paper company, jointly owned by Canadian Western Lumber Co. and Pacific Mills Ltd., B. C. subsidiary of Crown Zellerbach. One newsprint machine, about 290 in., is to start up in late 1952. Other units may be added; also kraft pulp later. Henry J. Mackin, president, and R. J. Filberg, vice president, broke off negotiations with Swedes when Crown Z entered picture.



Paul Cooper (in picture), president of Pacific Mills and one of the top officials in the new partnership, said engineering will be done in Canada by his company's organization and a consultant to be named later. Most

equipment will probably be purchased in Canada, though none had been ordered as we went to press. It will be a "rush job."

It is to be the first entirely new newsprint mill built in Canada or in North America, outside of two in the South, since Baie Comeau was built in the mid-thirties.

Orders for none of the machinery and equipment have so far been placed, but it will be a "rush" job in the sense that the organization will be set up and engineering details worked out just as rapidly as possible. The consulting engineer will be named before the end of August.

The news machine will be a four-roll unit modern in every feature. The press roll will be 290 inches, with 288 inch wire and 267 inch trim. At 2,000 feet per minute it should produce 320 tons of newsprint a day; at 1,510 feet per minute, about 240 tons. It may take a while to work up to close to capacity, but Mr. Cooper figures they should soon attain more than a speed of 1,700 FPM.

There will be at least two machines eventually. As several species of wood will be handled, it is planned to have a kraft mill operating at Elk Falls eventually.

The mill will utilize salvage wood primarily until it has access to the timber comprising the forest management license which was obtained by Canadian Western, consisting mostly of second growth which will not be ready for harvest for 20 to 25 years. In the interim Canadian Western and Pacific Mills will contribute small and salvage logs from their own regular timber operations to the newsprint mill, and every effort will be made to encourage sales from farm lots.

Hogged fuel will be supplied from the Canadian Western's big sawmill at Fraser Mills near New Westminster. The ground-wood mill will require the addition of

about 35-40 tons of sulfite pulp daily for the newsprint process and this will be obtained from outside (presumably from Ocean Falls). No townsite will be built near the mill; that is to say, it will not be a "company town" community. But Campbell River is one of the most attractive areas on Vancouver Island and mill workers will probably make their homes within a few miles of the mill on private land.

Announcement of Canadian Western and Pacific Mills' new partnership in the Elk Falls enterprise cleared up one of the industry's "mystery stories" that has been going the rounds ever since Canadian Western acquired the forest management license two years ago and announced its intention of building a pulp mill. The mystery concerned the identity of Canadian Western's associate inasmuch as Canadian Western has traditionally been a log and lumber producer with no experience in the pulp field.

Originally, the company's intention was to build two units—one newsprint and one kraft, and Crown Zellerbach engineering department co-operated in the early planning. Then Canadian Western became interested in establishing a dissolving pulp mill. Crown Zellerbach dropped out of the picture temporarily, and negotiations were carried on with various companies with a view to bringing them into the deal. Abitibi and Bowater's were among the major pulp and paper companies mentioned as possible partners. Until a few weeks ago Canadian Western was actively negotiating with one of Sweden's largest pulp and paper companies which had shown an interest in tieing in with the Vancouver Island development. Exchange complications, the Korean war crisis and other factors resulted in a stalemate.

Crown Zellerbach, through its subsidiary Pacific Mills, re-entered the scene with a suddenness that surprised everybody, although the possibility of such a deal had been under consideration of Pacific Mills top executives for some time.

Fine Records of Associates

The new partnership represented in formation of Elk Falls Co. is regarded by most men in the industry on the Pacific Coast as a "natural" in that it brings together two big companies with a long record of success in two separate but

associated fields. Pacific Mills is one of the largest pulp and paper producers in British Columbia with most of its operations concentrated at Ocean Falls, where its plant has been expanded almost to the limit for economic operation and where space for townsite development is now restricted. Canadian Western, operating at Fraser Mills, near New Westminster, what has long been rated the largest sawmill in the British commonwealth, has extensive timber holdings on Vancouver Island operated by its subsidiary Comox Logging & Railway Co., headed by Vice-president R. P. Filberg, will soon be within sight of the last of its old growth forest, although it will have access to huge second growth timber suitable for pulp manufacture.

Decision to go into the Elk Falls deal does not mean that Pacific Mills Ocean Falls expansion program will be adversely affected. A survey of the Nascall River power possibilities is being continued this year and additional power may be obtained from that source for future additions at Ocean Falls. For the time being, however, the Elk Falls project has top priority.

Canadian Western and Pacific Mills are each subscribing \$3,000,000 to the ordinary share capital of the new company, and financing of the balance of the funds required will be decided on soon. Bonds and a stock issue are likely.

EXPANSION IN SOUTH

I.P. and Riegel

(Cont. from Page 36)

S. C., reputedly the largest mill in the world, with its rated 1,470 tons a day (including 400 Chemfibre); Springhill, La., with 1,210 tons a day; Panama City, Fla., with 1,200; and Bastrop, La., with 900 (including 430 Chemfibre).

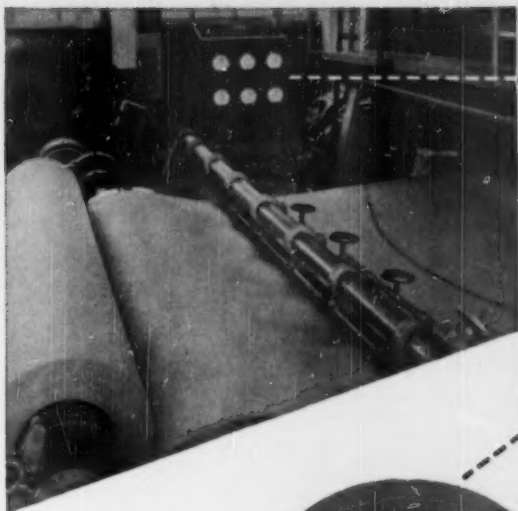
Top Officials—Equipment for Mill

Under Major Friend, among the top officials concerned with the new improvements at Moss Point are: Erling Riis, vice president in charge of operations and production, who is an ex-Thilmany Pulp & Paper man from Wisconsin; E. C. Karl, purchasing agent; George Ward, chief engineer, and his assistant, A. F. Perkins, all in Mobile, just 60 miles away.

New power and recovery plant, new washing and screening equipment, new evaporators and digesters—all these are reckoned in the major expansion at Moss Point. Existing wood handling and preparation systems, some new since World War II, will be utilized.

Westinghouse Electric Corp. will supply seven helpers for the new Beloit machine drive. Electric energy will be furnished by two new General Electric turbo-generators, and GE will furnish all-purpose motors. A most complete

(Continued on Page 102)



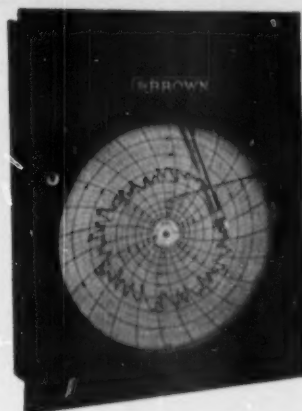
Recording, integrating flow meters in machine room measuring main steam flow... as well as steam to paper machine, felt dryer and mill heating system. Photo courtesy of St. Regis Paper Co., Tacoma, Washington.

DETERMINE
STEAM
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These advantages—plus low maintenance—have made Brown Flow Accounting increasingly popular in paper mills. There they produce sensational economies which quickly pay for their installation and enable them to show a continual profit.

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FOR THE PAPER INDUSTRY

Honeywell

BROWN INSTRUMENTS

GREAT NORTHERN STORY

(Continued from Page 22)

to begin with and is now. Perpetual yield was in force in their timberlands more than 30 years ago, and William Hilton, woodlands manager, was Maine's first forest service lookout.

Just prior to World War II when the Millinocket mill began the program mentioned early in this article paper machines cost around \$500,000. You heard it said that it was a lot of money for a paper machine. In the Thirties profits did not encourage such improvements. When in Aug. 1941 three more machines were replaced it was the era of paper machines at a million or more dollars, some close to two.

Rice Barton Machine

The five new paper machines, the last of which started up last December, were all built by Rice Barton and this, the 18th Great Northern machine built by the Worcester paper machine builders, again reveals a characteristic of the newsprint company. In the friendship and business relations of over half a century the two organizations have shared in considerable development and pioneering in newsprint machines. Hardy Ferguson designed the mills for what were then great speeds and it is interesting to note that the buildings still contain all the long range internal improvements. The new machines (twice the speed of the old) are 152-inch Fourdrinier machines with 79-foot wires. Slices of the Van de Carr curved lip type. Suction couches are Beloit 42 inches. Three of the machines are equipped with McDonald shakes and submarine signal compensators, and two arranged for the same equipment.

The first presses are of Beloit 28 inch diameter rubber covered, second the Great Northern "Multipress" design with Beloit suction roll and two top rolls. There are 38-5' staggered driers on each machine arranged in two sections. The steam drives run through line shafts and hypoid gears. Nine roll stacks, Pope reels and Cameron winders are used. Vacuum pumps are Nash Hytor of various sizes.

All paper machines are equipped with J. O. Ross Systems, at Millinocket, and all equipped with heating and ventilating systems designed and fabricated by Ross Engineering Corp. The machines are equipped with bottom felt supply systems for warm air at the felt.

In addition to the systems in the paper machine rooms are other Ross air systems.

With the contribution of Mr. Ferguson should be mentioned the late Elmer Pope, famed paper mill inventor who tried out his ideas at Millinocket.

The new machines are essentially the same width as the ones replaced but substantially longer. Preliminary to the actual shut-down of the old machine all possible preparatory work such as the installation of machine chests and new pumps, drive piers, new supporting steel where required, new piping, was com-

pleted. In the installation the old screens, reels and winders were used and these parts were moved to their new locations before the shut-down of the old machine. Careful planning was given such details as laying out and numbering the new parts, establishing traffic lanes for moving out old parts and moving in new parts.

The schedule of the actual shut-down time on each installation is of interest. This covers the actual number of lost production days from the time the old machine was shut down until paper was put over the new machine. In no case was difficulty encountered in starting up and on No. 5 machine the first reel of paper made was saleable.

The installation was under the supervision of Rice Barton erectors and the company's own engineers and maintenance supervisors.

The hoods, ventilating equipment, and such items were added on each machine after it actually went into production, and largely with week-end work. Thus with considerably less than three months lost time in the entire five years, Great Northern has increased Millinocket production almost 840 tons per day. The troubled times make that record, with its obvious concern to keep the supply to the maximum, historically in character for Great Northern—an institution whose program is one of "conservative expansion."

RECORD AT MILLINOCKET:

No. 1 Machine:	
Shut down	4/14/40
Started up	4/29/40
Time down	15 days, 8 hrs.
Actual production lost	12 days, 8 hrs.
No. 2 Machine:	
Shut down	2/22/41
Started up	3/8/41
Time down	13 days
Actual production lost	11 days
No. 3 Machine:	
Shut down	8/10/41
Started up	8/21/41
Time down	11 days, 7 hrs.
Production lost	9 days, 7 hrs.
No. 4 Machine:	
Shut down	1/30/49
Started up	2/10/49
Time down	11 days, 6 1/2 hrs.
Production lost	9 days, 6 1/2 hrs.
No. 5 Machine:	
Shut down	7/9/49
Started up	7/18/49
Time down	9 days, 12 hrs.
Production lost	7 days, 12 hrs.

JOSEPH F. GILL, associated with Perkins-Goodwin for 47 years, as traffic manager for most of that time, died in July at East Ryegate, Vt. Widely known in the pulp and paper industry, he was a member of the Foreign Commerce Club, New York Traffic Club, and for many years was chairman of the traffic committee of American Wood Pulp Importers.

ELMER F. HINNER has been made general manager of Hercules Powder Co.'s Virginia Cellulose Department (Hopewell, Va., plant) succeeding the late Lloyd Kitchel.

I. R. HEATH, former assistant to Dr. H. S. Hill in the research department, Price Brothers & Co., Kenogami, Que., has been appointed assistant to the general superintendent at the Price mill in Riverbend, Que.

Personals

News About Industry People From Coast to Coast

ALFRED GARDNER, mill manager, Provincial Paper Co., Mille Roches, Ont., and his wife recently visited their daughter, Jean (Mrs. Robert Ullman), who lives in Salem, Ore. Mr. Gardner was formerly on Wisconsin and Oregon mills.

WILLIAM MARBLE, of Sutherland Paper Co., Kalamazoo, is father of the first Michigan boy to be killed in the Korean conflict.

Thilmany's Collins in Europe

T. T. Collins, one of the technical staff of Thilmany Pulp & Paper Co., Kaukauna, Wis., was sent by his company to the Scandinavian countries to find out firsthand what is being accomplished in these countries in abatement of stream pollution.

Shirlaw New Supt.

Thomas M. Barry, manager of the Hollingsworth & Whitney Co. Northern Mills, announces that Matthew Boyd Shirlaw has been appointed superintendent of H & W's Winslow, Me., paper mill. He succeeds John A. Nivison who is retiring after 46 years with H & W. Mr. Shirlaw was former paper mill superintendent at The E. B. Eddy Co., Hull, Que.

PHILIP R. GAZECKI, secretary of Whiting Paper Co., Menasha, Wis., has been elected a director of the Neenah-Menasha Chamber of Commerce.

M. H. STETSON, former vice president and director of the Hawthorne Paper Co., Kalamazoo, recently sold to a Chicago and Kalamazoo group headed by William Slavin, made a recent trip with his wife to the Caribbean country.

CLARENCE BROWN has joined operations staff of Champion Paper & Fibre Co., Houston, Tex., going there from West Linn, Ore., where he was assistant foreman in the paper machine department.

EARL McCOURT, coordinator of production and sales, Consolidated Water Power & Paper Co., Wisconsin Rapids, Wis., and his wife, Margaret, are grandparents. Their son, James, and his wife, Martha, at Camas, Wash., where Jimmy is in Crown Z's technical department, recently had their first child, James, Jr., who will be nicknamed "Mickey"—his grandpappy's nickname.

GEORGE E. WILLIAMSON, president and chairman of Strathmore Paper Co., West Springfield, Mass., was awarded an honorary doctor of engineering degree at Worcester Polytechnic Institute commencement.

DR. JOHN S. BATES, director of Price & Pierce, Ltd., Montreal, New York and London, visited British Columbia in June and was at Nanaimo during the first weeks of operation of the H. R. MacMillan Export Co. pulp mill. Price & Pierce will market the output of this mill.

1898 *to* 1950

OVER HALF A CENTURY has passed since the **GREAT NORTHERN PAPER COMPANY** purchased their first paper machine.

SINCE THEN, TWENTY-FOUR OTHERS HAVE BEEN INSTALLED IN THEIR THREE MAINE MILLS, MADISON, MILLINOCKET AND EAST MILLINOCKET.

MANY RECORDS HAVE BEEN BROKEN BY GREAT NORTHERN IN THAT TIME AND THE HISTORY OF THE COMPANY HAS BEEN MARKED BY A LONG SERIES OF EXPANSIVE STEPS, EACH TAKEN WITH COURAGE AND CLEARNESS OF VISION.

ALL TWENTY-FIVE PAPER MACHINES HAVE BEEN BUILT BY RICE BARTON AND OF THIS, WE ARE PROUD. EACH IN ITS TIME HAS BEEN THE BEST MACHINE POSSIBLE.

BUT IT MEANS MORE TO US THAT FROM 1898 TO 1950 HAS BEEN A PERIOD OF UNBROKEN FRIENDSHIP. FOR THAT, WE ARE VERY GRATEFUL.

RICE BARTON CORPORATION

WORCESTER, MASSACHUSETTS

Paper Machine Builders Since 1837

BAGLEY & SEWALL PRESIDENT HOST TO TAPPI GROUP



HIGH POINT OF SUMMER MEETING OF EMPIRE STATE TAPPI group was the Frontier Party and Barbecue at Cherry Island, near Watertown, N. Y., given by Abe Cooper, President of Bagley & Sewall Co., at which these PULP & PAPER photos were taken. 1—Technical program speakers: Chester Lander, American Cyanamid; Chase Mather, Carthage Paper Makers, Inc., Chairman; Robert MacGonigle, Philadelphia Quartz Co. 2—Ken Carter, of Pigments Division, Du Pont, first prize in golf match; and J. H. (Pete) Heuer, Technical Director, St. Regis Paper Co., Defriest, N. Y., Chairman of Golf. 3—Mrs. H. D. Cook, Miss Marjorie Wright, Secretary of Bagley & Sewall, and H. D. Cook, Sweet Bros. Paper

Mfg. Co., Phoenix, N. Y. 4—Allen Hyer, General Sales Manager, Bagley & Sewall. 5—Robert Thompson, Bagley & Sewall, with Abe Cooper, President of that company and host at Cherry Island, and City Manager Island Wood of Watertown. 6—Sure shots D. C. Mather, Carthage Paper Makers; Walter Moorehouse, NOPCO; C. F. Haskins, F. C. Huyck & Sons; B. C. Mott, Allis-Chalmers; Charles Kelly, McCluskey Wire Co. 7—More speakers: W. A. Beaman, Socony Vacuum, and J. F. Butterworth of same firm; Horace Spencer, Knowlton Bros., chairman; Dr. E. I. Stearns, Calco Chemical, and F. O. Sundstrom, also of Calco; and James T. Coghill, Curlator.

ROBERT AND COMPANY ASSOCIATES

96 POPLAR STREET

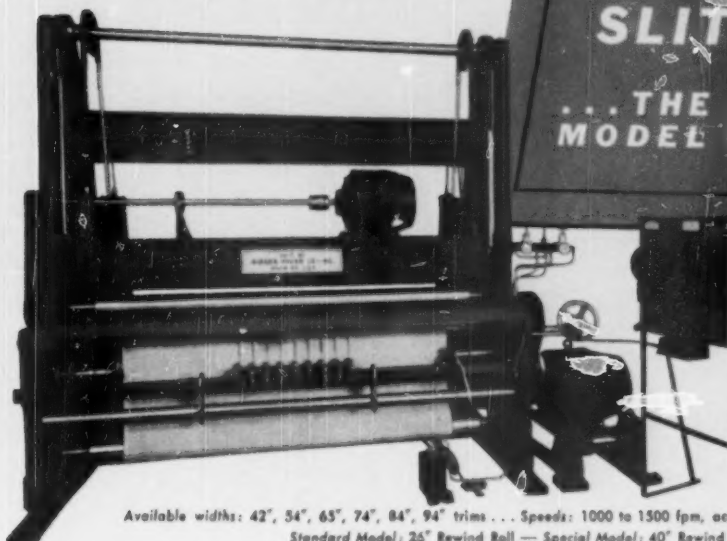
ATLANTA, GEORGIA

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HAROLD R. MURDOCK, *Chemical Engineer*

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Kidder Announces



A NEW
GEARLESS
SLITTER
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MODEL **G.T.**

**Rugged Enough
To Slit 200 lb.
Tag Stock...
Accurate Enough
To Handle The
Lightest Tissue**

Available widths: 42", 54", 65", 74", 84", 94" trims... Speeds: 1000 to 1500 fpm, according to type of work...
Standard Model: 25" Rewind Roll — Special Model: 40" Rewind Roll

G. T. Features For Easier, Lower-Cost Slitting

Gears Eliminated, resulting in greatly reduced upkeep and almost complete silence. V-belts replaceable without dismantling. Rotating members, except mill roll shaft, mounted on sealed anti-friction bearings.

Motor Drive sold as package, including M. G. set. Main motor and mill roll brake on right of machine. Kidder engineers will recommend motors of correct capacity.

Shear-Action Cutting severs web. Shaft-mounted, two-edged back cutters, $\frac{3}{8}$ " wide, are driven slightly faster than the web. Ball-bearing front cutters, rotating by pressure against back cutters, are kept sharp by latter's harder metal.

Slit Webs Are Wound either on core or on a collapsible shaft, in cradle formed by two drums, under pressure

from a third above. The two drums are driven by main motor; top roll is driven by a rheostat-controlled auxiliary motor.

Hardness Controlled by varying pressure and speed of top roll assembly, which is heavy enough to wind the hardest roll. Pneumatic cylinder provides counterbalance ranging from zero to complete lift.

Web Tension is provided by water-cooled, rotating-disc brake. Actual tension control is through pneumatic diaphragm exerting smooth, flexible pressure on the two stationary plates.

Bow Bar helps smooth out wrinkles and handle baggy stock. Bar, adjustable as to angle, can press on web's center or edges, combining with the mill roll's bias adjustment to keep web straight and taut.

Send for complete information on the quieter, smoother-working, cost-reducing Model G. T. Slitter



- give you
1. Clean, Accurate Cutting
 2. High Speed, Dustless Operation
 3. Easy Separation of Rolls

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WISCONSIN SWL PROJECTS

War Emergencies May Affect Progress

With their Sulfite Pulp Manufacturers' Research League now reorganized and new experimental work planned at three Wisconsin mills, the Lake States sulfite industry is moving gradually closer to solutions of their problems—but with their fingers crossed as to possible effects of war restriction or priorities on obtaining critical equipment.

High cost alloy and stainless steels used in many places for handling the highly corrosive waste liquor in present or planned disposal plants are not expected to be as tight as mild steel, but in view of the major installations which are required for any waste liquor handling, there is always the possibility that tanks and torpedoes might have the priority in the fabricating plants.

Meanwhile, new experimental work is projected at Rhinelander Paper Co., Hoberg Paper Mills, Inc., and Northern Paper Mills. Since these plans were announced in these columns last month, it has been learned that Jesse M. Holderby's title at Rhinelander will be manager of the company's By-Products Division, to be newly set up and organized under his direction, reporting to Folke Becker, president.

It is too early to speculate on the additional marketable solids that the work under Mr. Holderby will be projected toward, but PULP & PAPER is advised that the new development will include evaporators, evaporating both effluent from the League's torula yeast plant in operation there and the remainder of sulfite waste liquor not now being processed. Reclamation and use of any and all manufacturing wastes at Rhinelander will be in Mr. Holderby's orbit.

As announced last month, J. M. Conway, chairman of the league and president of Hoberg, announced that his company is doing preliminary engineering work on a tentative project for another torula yeast plant. However, he explained his company probably will not make a definite decision on the type of plant it will undertake for pollution abatement until about October or November.

As announced by Milan Boex, president, Northern Paper Mills at Green Bay is engineering a project for evaporation and burning of calcium sulfite liquor. A power plant addition, probably burning concentrated liquor without coal, is needed for additional paper mill capacity.

With Mr. Holderby now gone from Appleton and Dr. Averill G. Wiley now the new active head of the League activities, emphasis is placed even more strongly than ever on the scientific, rather than political, approach to the problem. Dr. Wiley has been technical director of the league for years and he will retain that



AVERRILL J. WILEY (left), native of Washington state, is the new head of the Sulfite Pulp Manufacturers' Research League, Inc. (of Wisconsin and Michigan), with headquarters in Appleton, Wis. He retains his title of Technical Director. GROFF COLLETT (right), native of Kansas, is the new Business Manager of the league, handling administrative matters under Dr. Wiley. They take over responsibilities of JESSE M. HOLDERBY, whose title was Coordinator of Research of the league. Mr. Collett had been his Executive Assistant. Mr. Holderby recently became Manager of By-Products Division, Rhinelander Paper Company.

title. Mr. Holderby was coordinator of research, a title which is dropped, and his executive assistant, Groff Collett, of Appleton, will now be assistant to Mr. Wiley with the title of business manager, handling administrative work.

Born in Pullman, Wash., Dr. Wiley,

Thilmany Machines Lose Supply if Interlake Closes

E. H. Jennings, president of Thilmany Pulp & Paper Co., Kaukauna, Wis., points out that operation of two Thilmany machines are dependent upon the Interlake mill at Appleton, Wis., of Consolidated Water Power & Paper Co. It has been officially announced that this sulfite mill may have to shut down if the Wisconsin state commission on water pollution presses its deadlines for a liquor disposal plant there—Jan. 1, 1951 for submission of a plan and Jan. 1, 1952 for its completion.

He said: "The Interlake Mill supplies 85% of the pulp requirements of our No. 1 and No. 2 paper machines. For the first time in our history in making a contract with the Interlake Mill—and we have purchased pulp from them for over 40 years—a clause was inserted providing for cancellation or reduction in volume should the mill find it economically unsound, because of any law or regulation, state or federal, to continue the manufacture of pulp.

"That clause means that the operations depend entirely upon the rulings of the state commission on water pollution. The Interlake Mitscherlich pulp cannot be easily replaced.

"I am sure we are all agreed that we would like to see our Fox River free from pollution. Some day this problem will surely be solved. Of even greater importance, we can all lend our influence to the proposed creation of reservoir basins along the upper Wolf River to insure a more even flow during the dry season when, by the emptying of tons of algae into the river, the lake carries a greater responsibility for pollution than does industry."

who is 39, earned his bachelor's and master's degree in science in Washington State College, and his doctorate at Wisconsin. The problem of sulfite liquor existed in Washington state then as now, and since 1933, when he was a student in Washington state, he has done scientific work in sulfite liquor fields, particularly biological engineering. He worked on biological wastes in Spokane, Wash., and moved to Wisconsin in 1938, two years later joining the league. He became its technical director in 1946 and technical director of its subsidiary, the Lake States Yeast Corp., with the plant at Rhinelander, in 1948.

Born in Kansas, 27 years ago, Mr. Collett is a Navy veteran and obtained a master's degree in engineering at M.I.T.

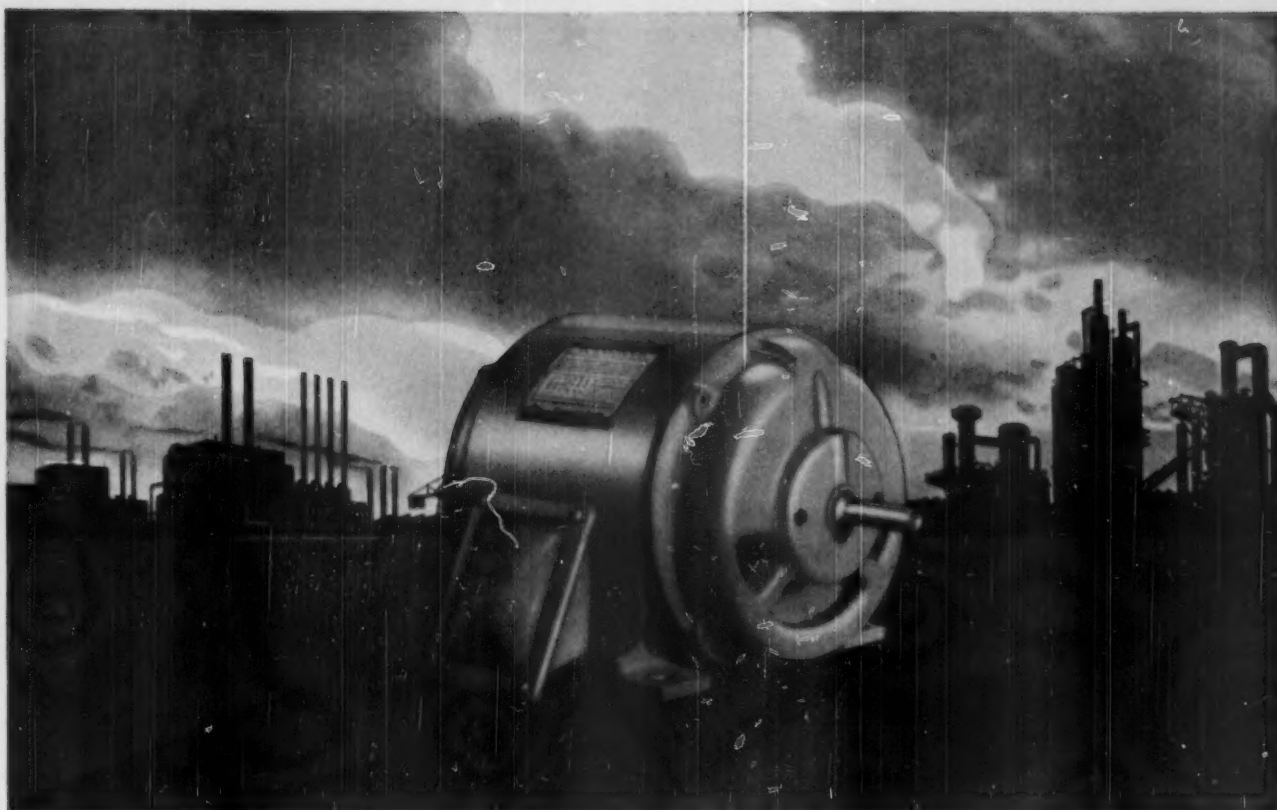
Wiley's Work in Sulfite Liquor

Mr. Wiley permanently lost his hearing from a boyhood illness, but has carried on some of the most notable work done in sulfite liquor research despite that handicap. The trickling filter treatment plant which the league built at Consolidated Water Power & Paper Co.'s Appleton, Wis., mill was a major project which he had charge of. The final larger pilot unit there demonstrated the unfavorable economic aspects of this plan for solution of the problem. Favorable conditions, it was found, were difficult to maintain because of changing weather, growths on the filter, etc., but mainly it was abandoned because of the large and expensive installations that would be required for even a 100-ton pulp mill. Such a mill would require eight acres of 6-ft. deep filter area and extensive tile lining and stainless steel piping.

Dr. Wiley next worked on a project set up to evaluate the Hays process for contact aeration of sulfite liquor and the league's contact aerator carried much heavier loadings than any process carried up to that time. His work, however, brought out mechanical difficulties, inability to provide sufficient air, unmanageable foaming, etc., and World War II emergencies arose to intercept further work.

Simultaneous to this work, Dr. Wiley conducted studies on anaerobic methane fermentation but low rates of fermentation proved a disadvantage after three years of work.

Then from Germany came optimistic reports of cultivation of pentose fermenting yeast in sulfite liquor and this led to the league program at Rhinelander. In a report which Mr. Holderby and Dr. Wiley made on this project early this year, it was stated that of all the biological methods for treating spent liquor, the yeast process "from the standpoint of loading capacity and potential and practical B.O.D.



Emphatically— all motors are **NOT ALIKE!**

Some time ago, Reliance startled many people by challenging the old chestnut . . . "all motors are pretty much alike". We have since offered proof that all motors are *not* alike by showing how **PRECISION-BUILT A-c. Motors** are made differently—to deliver dependable power longer. Reliance is always anxious to have interested visitors see our modern plants and the many extra precision steps which account for the big difference in these motors. But if it isn't practical for you to make such a visit, just call in a Reliance Sales Engineer and you will see pictures, charts and hard facts which are turning more and more motor users into Reliance customers. Ask for Bulletin B-2101 (A-c. motors from 3/4 to 300 hp.).

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removal, has proven to be of greatest immediate interest . . ."

In their report this year, Dr. Wiley and Mr. Holderby listed the process efficiencies for various methods of biologically treating sulfite liquor, as shown in this table:

COMPARISON OF METHODS OF BIOLOGICALLY TREATING SULFITE WASTE LIQUOR

(Based on waste liquor actually processed)¹

Treatment Process	Maximum Loading (lb. B.O.D. per cu. yd. per day)	Removal of 5-day B.O.D. (%)	
		Maximum	Indicated Practical
Disposal Processes:			
Activated sludge ²	1.7	95	—
Film phase ²	3.4	88	80 to 85
Trickling filter	6.4	81	65 to 79
Contact aeration	9.5	86	70 to 75
Utilization Processes:			
Anaerobic methane	1.5	80	60 to 70
Acetone-butanol ³	45.0	79	—
Lactic acid ³	45.0	—	—
Ethyl alcohol	—	55	—
Plant No. 1 ¹	61.0	—	45 to 50
Plant No. 2 ¹	78.0	—	45 to 50
Torula yeast	102.0	83	70 to 75

¹Data obtained directly or calculated from published reports.

²The degree of waste liquor recovery possible from the washed pulp is a controversial issue dependent on conditions at the individual pulp mill. Estimates range from 60 per cent from primary drainage to more than 90 per cent with use of special equipment.

To be practical biological treatments must meet these minimum requirements, according to Dr. Wiley and Mr. Holderby:

"First, the process must be capable of handling very heavy loading in order to keep the capital investment within reason. Treatment of such strong waste products as spent sulfite liquor at conventional loading rates would require relatively enormous treatment plants, the capital charges for which would be increased by the need for acid-resisting materials throughout. The loading which any process can handle will obviously have direct and important effects on the size requirements, and hence on construction expense. Calculations indicate the cost of treatment facilities of the standard 'disposal type' to range into several million dollars to handle the waste from a 100-ton pulp mill, if such processes were to be adopted in their present stage of development. Investments of this order approach that of an entire pulp mill.

"Secondly, the process should be capable of removing a minimum of 65 per cent of the 5-day B.O.D. from the waste liquor processed. Stream pollution cannot be expected to be greatly improved by the treatment of such strong wastes unless somewhat more than one-half the 5-day B.O.D. is removed. An arbitrary figure of 65 per cent reduction has been set as a minimum standard on which to judge a process in the investigations. Other situations and other wastes may dictate different minimum standards.

"The remaining major requirement is that there must be a substantial recovery of values from the process to offset a portion of the operating charges. With sulfite liquor, the requirement for nitrogen and phosphorus nutrients involves hundreds of dollars per day in those processes operating aerobically, such as the trickling filter, activated sludge, and yeast production. The recovery of products may be very expensive in terms of power, steam, equipment, and skilled labor. To balance these and many other costs it is imperative to recover products which can be sold in large volume to stable markets. So large are the potential production volumes of the various products which could be produced from spent sulfite liquor that it is difficult to conceive of markets being developed to absorb many of them. This consideration alone may be the final basis on which the practical feasibility of a process is to be judged."

SEEKS NEW LIQUOR DATA

Pulp and paper industry experts from Wisconsin and other points who have visited the new Washington state biological laboratory to test the tolerance of fish for sulfite liquor, at Bowman Bay, near Deception Pass, Puget Sound, have pronounced it a first class scientific installation and "the best facility for its purpose in the country."

Sulfite liquor from the Scott Paper Co.'s subsidiary mill at Anacortes is being used and tanks and other installations are making possible a true functioning of fish habits. The reason for the laboratory stems from the decision of the Washington State Fisheries Department and Pollution officials to conduct their own research on the effect of waste liquor on fish life, without accepting information from either sportsmen's groups, newspapers, pulp mills or any of the other interested parties.

This installation has been visited by a large number of people from all parts of the country. Dr. Van Horn of the Institute of Paper Chemistry at Appleton, Wis., has made several trips to Bowman Bay, and has indicated that he would place entire faith on the results obtained from the installation because it has been so constructed that there is very little chance of it not producing the correct results. Dr. Doudoroff of the U. S. Public Health Service Environmental Sanitation Laboratory in Cincinnati, Ohio, visited the plant recently and expressed the same opinion.

To date several runs have been made with salmon in an attempt to work out the procedures to be used and to stand-

ardize the techniques. From now on results of a definite nature should be coming from the project.

"Anyone in the pulp industry is welcome to visit the installations; however, it is requested that arrangements be made through this office for such an inspection," Dr. E. F. Eldridge, director and chief engineer of the State Pollution Control Commission in Olympia, Wash., told PULP & PAPER.

Progress at Camas and Hoquiam

Progress has been reported on the Crown Zellerbach Camas, Wash., waste disposal installation, said Mr. Eldridge. This installation involves piping of sulfite waste liquor and washings from the mill across Camas Slough and Lady Island into the deep water channel of Columbia River. The pipeline will be such as to discharge waste through a large number of multiple outlets over a section of about 300 feet of the main channel. Mr. Eldridge said the pipe has been ordered and that the project will proceed as soon as this order has been filled. It is expected the facility will be in operation by Dec. 1, 1950.

He added that a survey crew of his office is soon to be engaged in a survey of Grays Harbor and rivers in the vicinity of Aberdeen and Hoquiam. Rayonier, Inc. is at present proceeding with the enlargement of its ponding area and other changes in their mill operation in order to better the conditions in the harbor, he said. The survey, he said, is for the purpose of indicating results of the changes now underway.

PEARL'S RESEARCH LED TO CURE Ex-Seattleite Discovers Drug



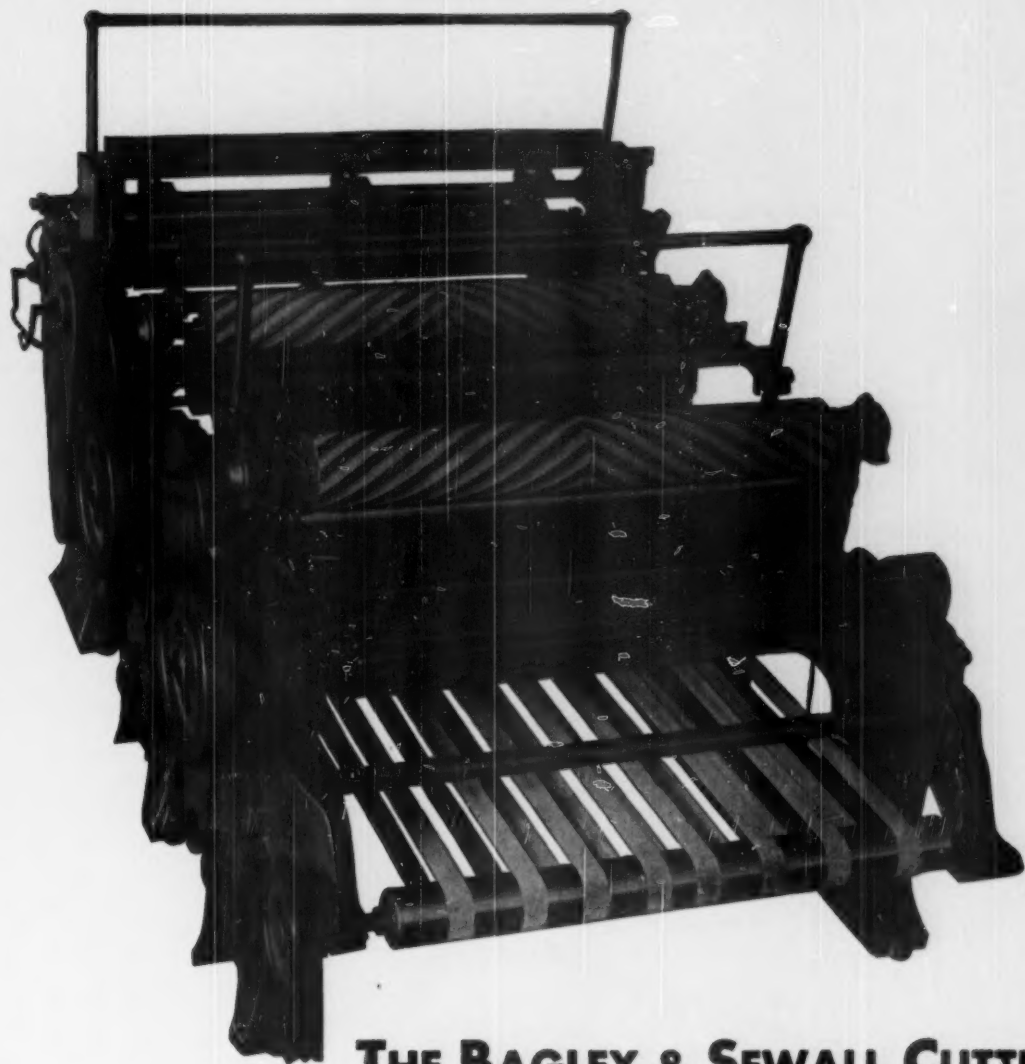
Dr. Irwin A. Pearl, shown in the accompanying informal photo taken by PULP & PAPER in his laboratory "working clothes," has been revealed as the research chemist whose work has led to the amazing discovery of cure for histoplasmosis, a previously fatal children's disease.

Dr. Pearl, whose home was formerly in Seattle, Wash., and who obtained his degrees in chemistry, including his doctorate, at the University of Washington, has been a specialist in sulfite liquor research for several years at the Institute of Paper Chemistry in Appleton, Wis. In his name are numerous patents on sulfite by-products and related processes, some of which may some day prove significant for the industry.

In the July issue of PULP & PAPER we published the news of the new miracle drug, as revealed in the Institute's annual report by Westbrook Steele, In-

stitute president. He disclosed that through the Institute, this industry had financed the development, even including the successful clinical investigations carried out by Vanderbilt University. What Dr. Pearl's research led to—a drug from a vanillic acid compound. The ester of the material, ethyl vanillate, had already been used as the base of a fungicide for preventing molding on foodstuffs and was found effective in curing the children's disease. There had been no known cure until this was accomplished. While a great medical achievement, its utilization of waste liquor could only be very limited.

Dr. Pearl collaborated with Dr. H. K. Benson, then head of the University of Washington chemistry and chemical engineering department in the early 1940's in preparing the successful defense of the Puget Sound Pulp & Timber Co. in a pollution lawsuit. In connection with that defense, Dr. Pearl developed a chemical test for sulfite liquor in sea water which is now widely accepted and used. Before joining the institute staff, Dr. Pearl had also been employed by the Washington State Planning Council in sulfite liquor development work.



THE BAGLEY & SEWALL CUTTER . . . SIMPLEX, DUPLEX, and TRIPLEX DESIGNS

This new Bagley and Sewall Cutter, besides being a sturdy, smooth running machine, has many innovations. It's definitely new design—a cutter that does a clean cutting job easily with a minimum of attention. Has a quick-change dual slitter that makes easy changing from one set of slitters to another without breaking the sheet.

Has positive drive on knives and draw rolls, assuring accurate sheet lengths. Knives are easily ad-

justed—no shims. All clutches are air-operated from the front of the machine, and all driving parts are totally enclosed for safe operation . . . to mention a few desirable features.

This new cutter can be furnished in simplex, duplex, or triplex design.

If you want clean, accurate cutting, then the Bagley and Sewall Cutter is the machine for you. Write us for more detailed information.

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MACHINE TENDER Munchausen Stories



The selection for this month's tall story for this corner was actually contributed by one of our readers, not by the story-teller. It was related in a recent address by Reuben B. Robertson (in picture) and we considered it a timely selection

for this issue because he has just concluded his long service as president of Champion Paper & Fibre Co. He has turned over reins to his son, whose picture is also shown on this page. Mr. Robertson, Sr., a former president of AP-PA, takes over the less active duties of chairman of the board of the paper company.

The humor of this story will be appreciated by every mill official or supervisor who has witnessed the cussing an engineer sometimes gets from an operator, or vice versa. Of course, Mr. Robertson was sure no engineer would take his story too seriously—in fact, the story

emphasizes how indispensable are both operator and engineer.

Any "peddler" or papermaker is welcome to send in a contribution of a tall mill story to this corner and win a \$5 honorarium. Why not try your hand?

Here's Mr. Robertson's tale:

Paper Machine in Heaven

A new arrival in heaven was shown a marvellous paper machine which embodied every scientific device that any papermaker had ever dreamed of—and papermakers do a lot of dreaming!

This machine would regularly produce a quality that would always satisfy the most exacting customer, and a quantity that would warm the hearts of the sales department during a seller's market. It provided a smoothness and convenience of operation that permitted the machine-tender to read his penny dreadful for hours at a time, without interruption for adjustments and on top of this would operate at a cost that would not only satisfy but actually please the owners. This machine shone brilliantly with gold-plate tile lined vats and gleaming stainless steel. Of course, this heavenly structure

was equipped with the very latest in electrical controls and sectional drive.

The newcomer to heaven, lost in admiration for this perfect machine, suddenly realized it was not operating, and he asked his guide:

"Why is that marvel of engineering skill idle? Are there no papermakers in heaven?"

Replied the guide: "Sure, there are plenty of papermakers in heaven. But there aren't any electrical experts."

NEW PRESIDENT HEADS CHAMPION PAPER & FIBRE



REUBEN B. ROBERTSON, JR., (in picture), who has succeeded his father as president of Champion Paper & Fibre Co., with mills at Canton, N. C.; Pasadena, Tex., and Hamilton, O., headquarters at Hamilton. This company is one of nation's top

producers of machine coated papers. R. R. Robertson, Sr., was simultaneously elected board chairman at the stockholders' meeting July 26. His son, who had been executive vice president, went to work in a mill wood yard after completing his college education. Over the years he has worked in every department of the operations and is well grounded in all phases of Champion's industries.

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Good
HOUSEKEEPING PRACTICE

**SLIME CONTROL
WITH ONE PROVEN PRODUCT**

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Now YOU CAN



MAKE BARK
CRUSHING SHOW
A PROFIT!

by using the new
SQUIER
HIGH PRESSURE
BARK
CRUSHER

The Squier Bark Crusher
illustrated above is in operation
at the Bate Camou plant of the
Quebec North Shore Pulp and Paper Co.

HERE are some outstanding features
of the new Squier Bark Crusher:

- 1** Extremely rugged design, based on many years of fibre-crushing experience.
- 2** No hog required, before or after—handles unhogged bark from barking drums.
- 3** Special Squier-designed feeding device controlled by air pistons readily handles slippery barks.
- 4** High nip pressures produce drier bark with consequent higher calorific value.
- 5** Low moisture content of light, fluffy, splayed-out crushed bark particles permits conveying by fan.
- 6** Disintegration of bark fibres produces a fuel which will burn readily with any type of furnace feeding.

The new Squier Bark Crusher is a heavy-duty machine providing high extraction of moisture and minimum handling of dry-milled bark residue. Milled bark is crushed with fibres well splayed out, for quick drying or burning directly in furnace.

The Squier Bark Crusher operates *dependably*, with least-possible maintenance cost and low relative horsepower requirements.

Write us TODAY for full details.

The SQUIER Corp.

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BUFFALO, N. Y.

Personals

JUSTIN H. McCARTHY, chief engineer, St. Regis Paper Co., Tacoma, Wash., taught his son, Jim, well when he taught him golf, for young Jim, 16 years old, recently won national fame for capturing the William Randolph Hearst National Junior Golf Tournament in San Francisco with a score of 303 for 72 holes.

CHARLES E. WHITTEN, formerly vice-president and treasurer of Gair Co. Canada, Ltd., in Toronto, has been elected president and general manager to succeed **GEORGE W. BROWN** who died June 1. Mr. Whitten has been with the Gair Co., manufacturers of paperboard, folding cartons and shipping containers, since its inception. **HAROLD L. STEELE** was elected to the board of directors to fill the vacancy left by Mr. Brown's death. **W. RUSSELL ECCLES**, formerly assistant treasurer, has been appointed treasurer.

FRANK "JOHNNY" PEOTTER, expert machinist in the research and development laboratories, Kimberly-Clark Corp., Neenah, Wis., recently retired after over 42 years with K-C. He had been maintenance foreman at the Kimberly, Wis., mill.

DAVID LUKE, JR., president of West Virginia Pulp & Paper Co., New York, was another returned visitor from abroad. So was **JOSEPH ATCHISON**, chief of forest products division of ECA in Washington, D. C.

ROY SHAVER, vice president and manager of Gould Paper Co., Lyons Falls, N. Y., subsidiary of Continental Can Co., has retired and will live on a farm at Dover Plains, N. Y.

ROBERT W. MAYHEW, head of Sidney Roofing & Paper Co., Victoria, B. C., has been visiting Australia as a member of the Canadian government, attending a Commonwealth conference. He planned to visit paper mills while in that country.

Clark Heritage Named Director of Development



In a far-reaching move for an outstanding integrated forest products industry, Weyerhaeuser Timber Co. has created the new position of director of development and placed in it Clark C. Heritage (in picture) well known

in paper industry technical circles and a past national president of TAPPI. Mr. Heritage will move from St. Paul to Tacoma, Wash., where he will establish headquarters as of Sept. 1.

Since 1941, Mr. Heritage has been acting in a consulting capacity for Weyerhaeuser in directing its new Development Department at Longview, Wash., which developed plastic bark products from sawmill wastes. R. D. Pauley, who has been his assistant there, will continue in that capacity. Mr. Heritage has been dividing his time between Longview and Wood Conversion Co., Cloquet, Minn., Weyerhaeuser affiliate, where he organized development work. Now he will devote full time to development of diversification and better use of all Weyerhaeuser Timber resources, and it is understood he will direct new technical studies right back to the logging stands.

He organized development for the Oxford Paper Co. in Maine years ago and later was head of pulp and paper work at the U.S. Forest Products laboratory in Madison, Wis.

Pins at Pacific Mills

Paul E. Cooper, president of Pacific Mills, Ltd., presented service pins to 73 employees at Ocean Falls, B. C., recently. Thirty-year pins were awarded to Samuel Hunter and James McKellar, and 25-year pins to Stewart Findlay, D. Cecil Morrow and E. May Walker. W. D. McLaren, director of Pacific Mills, was guest speaker.

A. E. DUKE, former master mechanic at the Soundview Pulp Co., is now the general manager of the E. R. Johnson Construction Co. of Everett, Wash., and still has his home on Lake Stevens.

O. D. HALLIN, who succeeded T. B. Jackson as manager of the timber department, Pacific Mills, Ltd., Vancouver, B. C., about a year ago, has been elected a vice president of that company. At the annual meeting recently, Paul E. Cooper was re-elected president; J. A. Young and H. C. Pim, vice presidents.

D. H. MAUNSELL has been promoted from general superintendent to mill manager, Dryden Paper Co.; **NORMAN McMILLAN** from logging superintendent to woods manager; **NORMAN HOWE** from pulp mill superintendent to production manager; **J. B. DAVISON** from secretary to office manager and secretary. **ARTHUR TEW**, shop foreman in the pulp mill, has been named acting pulp mill superintendent.

R. KERSLAKE and **PETER TINDALE** of the Botany mill of Australian Paper Mills, Ltd., visited Canada and the United States in May, and **C. T. FARMER** of the same company's Marydale mill has gone to Nanaimo, Vancouver Island, to join the H. R. MacMillan Export Co. pulp division.

We'll work with you on any
SCREEN PLATE
problem you may have

**UNION SCREEN
PLATE COMPANY**

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Screen Plate makers
for more than
70 years

**CORROSION RESISTANT
BRONZE**

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"CORROSIST"

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Pacific Coast Representatives:

PACIFIC COAST SUPPLY CO.

PORTLAND, OREGON

PP-12

GILBERT MILL IMPROVEMENTS

Installs New Jones Pulpmaster for Broke

Gilbert Paper Co., Menasha, Wis., bond and writing paper mill, has installed a new E. D. Jones & Sons Co. "Pulpmaster," a stainless steel tub with single stainless rotor, for fast reduction of all kinds of broke to pulp. Broke is segregated and stored at Gilbert until such time as usable.

This is part of a million-dollar plant development program for improvement of uniformity and quality of Gilbert papers.

A single operator loads and operates the Pulpmaster and through a system of distribution piping and remote controlled valves can deliver the slushed stock to any one of six chests from which the beaters are supplied. An automatic water system flushes the entire piping system so there is no chance of mixing colors, or grades, on the various paper machines.

The pulp storage chests are steel plate with the interior surfaces "Heresite" coated; all piping is either Transite, "Heresite" lined, or non-ferrous, as are the automatic valves, eliminating any possible chance of stock contamination.

The chest agitators, valve operators and control system are Gilbert Paper Co. developments. The agitator shafts are Monel with phosphor bronze balanced impellers, and are operated without step bearings in the bottom of the chests.

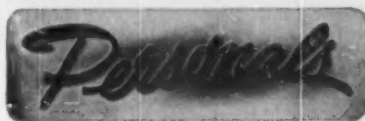
Indicating and recording instruments give both the pulper and beater operators a constant indication of the stock level in all chests, and a daily record of the function of each one. The transfer valves are air actuated, and controlled either by air valves or electrical solenoids, with indicating lights showing the valve positions.

Gilbert Paper Co. has two Rice Barton machines, 120 in. (105 trim) and 86 in. (72 trim) and one Bagley & Sewall, 102 (88), all Fourdriniers, and its supercalenders are 36, 38, 40 and 50 inches width. It makes writing, bond, bristol, onion skin, tracing and other specialties, with 30 tons daily capacity. A number of Jones beaters and Morden Stock-Makers are used in preparation.

A. C. Gilbert is president and general manager; G. M. Gilbert, vice president and treasurer; T. M. Gilbert, treasurer and sales manager.

Electric Drive Equipment For Springfield, Ore., Mill

An amplydne-controlled log carriage drive has been installed on the main sawmill headrig at the Springfield, Ore., operations of Weyerhaeuser Timber Co. where that company has a containerboard mill. The General Electric unit replaces the steam shotgun feed. John S. Abel, chief engineer for Weyerhaeuser at Tacoma, Wash., headquarters, said the change-over to electric drive was necessary because of limitation in steam supply which will be available after the production capacity of both the containerboard mill and sawmill are increased, work on which is now underway.



News About Industry People From Coast to Coast

E. W. TINKER's office couldn't confirm that he would take a holiday but affirmed his July jaunt through the Midwest mill area was in line of duty as executive manager of the American Paper and Pulp Association. APPA's statistician, Dr. Louis Stevenson, planned his free days on his farm north of New York.

SAM SHANE, the ex-Wall Street Journal staff man (also ex-Canada journalist), who is public relations director for St. Regis Paper Co., returned vigorous from a sojourn in Vermont where he has acreage and summer home.

DON FRASER, New York sales representative for Soundview Pulp Co., Everett, Wash., learned there are other fishing grounds than those of his native haunts in Eastern Canada and New England. Mike Buckley, Soundview's sales manager, and Leo Burdon, vice president, chartered a cruiser to show him the way, but almost in front of the mill's waterside, the ex-president of the Pulpmen's Golf Association caught a 29-pound king salmon—a very big fish indeed.

JOHN L. RIEGEL returned from Europe, called stockholders as president of the Riegel Paper Corp., New York, and received approval to start the long-planned North Carolina pulp mill which will furnish but half Riegel's requirements.

DAVID R. NORCROSS, son of ex-chief engineer of the Forest Service, Theodore Norcross, has joined the sales staff of Timber Engineering Co., Washington, D. C., it has been announced by HARRY G. UHL, president. A veteran, young Mr. Norcross is a graduate of University of Maryland, will handle sales and lumber promotion for Teco with engineers, architects, and government specifiers.

EVERETT W. CLEM has been appointed to the new office of vice president in charge of engineering of the Rice Barton Corp., Worcester, Mass. Mr. Clem joined the company in 1925 as a graduate of Wentworth Institute of Boston, was appointed chief engineer in 1935. He is a grantee on a number of patents in pulp and paper machinery.

HUGH G. BOYER won the \$500 first prize of the Old Colony Envelope Company, Westfield, Mass., for his slogan "Service First—Satisfaction Always." Mr. Boyer, Caskie Paper Company, Charlotte, N. C., took the prize from among 500 slogans submitted by paper merchant personnel.

WALTER LANDWEER's appointment as sales manager, wrapping paper department, Blake, Moffit & Towns, Seattle, has been announced by Frank A. Carson, division manager, succeeding D. Aubrey Hलगren, who died suddenly April 1.

DR. JAMES EDWARD MILLS, chemical research director for Sonoco Products Co., Hartsville, S. C., was one of eight chemists and chemical engineers honored by the American Chemical Society for 50 years' service to the industry.

FREDERICH KLEIN, technical director of the famous Feldmühle mills in Germany, was among the officials of that company visiting on the West Coast recently. With him were DR. KARL HASS, director of chemical plants; and DR. R. TIER, chief engineer. They visited pulp mills in Washington State, and the Pennsalt plant in Tacoma, then proceeded to Canada. Others from the same organization, DRS. HACK, SCHROETTER and BOOS, visited elsewhere in the U. S. Full name of their mill is Feldmühle A. G. Papierund Zellstoffwerke, Hillegossen near Bielefeld.

ELLIOTT IRVINE, assistant office manager, Crown Zellerbach, Port Townsend, was elected secretary of the Rotary Club there for the coming year. TOM WADE, of the personnel department, recently attended a Forest Products safety conference in Longview, Wash.

WILLIAM H. JENNENS has been named superintendent of the paper sensitizing department, Eastman Kodak Co.'s Kodak Park, N. Y., plant, according to Charles K. Flint, plant general manager. Mr. Jennens succeeds William K. Kridel, who retired recently.

BURT KASSING has joined Nekoosa-Edwards Paper Co., Port Edwards, Wis., as director of process and product development. Mr. Kassing will coordinate the work of technical and manufacturing departments in planning and developing new products and processes. A graduate of New York State College of Forestry, Mr. Kassing later taught there. From 1948-50 he was general manager of manufacturing at the Ecusta Paper Corp., Pisgah Forest, N. C.

JACK WEIBLEN, superintendent of finishing at Columbia River Paper Mills, Vancouver, Wash., is son-in-law of Charles E. Ackley, new superintendents National president and superintendent at Crown Zellerbach Corp. West Linn, Ore. mill. Mr. Weiblen has been with the Columbia River mill 7 years in present capacity, formerly being in traffic department of Rayonier, Inc., Hoquiam, Wash.

STEWART HOLBROOK, native New Englander author well known to many forestry and pulp and paper men, who lives in Portland, Ore., made his annual visit to New York City and down East. He called on, to talk over old times, LAURENCE F. WHITEMORE, recently elected president of Brown Co.

Personals

HAROLD BUTTERY went to Santa Clara, Calif., for three weeks, to confer with the Tait Construction Co. with regards to the building of a new California division (converting), for Sutherland Paper Co., Kalamazoo.

NATHAN BERGSTROM, president of Bergstrom Paper Co., Neenah, Wis., in a telegram to Wisconsin's representatives in Congress, urged drastic cuts of non-military expenditures of the U.S. during the war emergency. A copy was posted at the mill.

ROBERT GREENE, of the export division of the Bulkley, Dunton Pulp Company, New York City, was a recent visitor to the Pacific Coast in the interests of his company. He brought back with him some of the finest Leica color shots ever taken of the Northwest and California woods and waterways.

HAROLD ZELLERBACH, president of Zellerbach Paper Co., San Francisco, and **WILLIAM REED**, president of Simpson Logging Co., Shelton, Wash., visited the Crown Zellerbach mill at Port Townsend, Wash., in late July and another Townsend visitor in that period was **P. T. SINCLAIR**, assistant manager of manufacturing paper, Crown Zellerbach Corp., San Francisco.



RUDOLPH PARADIS (left), newly appointed Assistant Superintendent, Brown Company's kraft mill, Berlin, N. H. He came from Sarg Pulp Co. at Port Mellon, B. C., which is now shut down.



STANLEY LEISHMAN (right), Paper Mill Superintendent, Escanaba Paper Co., the Mead Corp. subsidiary near Escanaba, Mich., snapped by PULP & PAPER visiting editor at his desk. He revisited old haunts and former home in Vancouver, B. C., this summer. Went to Escanaba two years ago after being with Crown Zellerbach.

REX VINCENT, technical expert for Bulkley Dunton Pulp Co., keeps lean and fit by his hobby of hiking, and spent his holidays exploring tough trails in the White Mountains, looking at White Mountain logging on government lands. One of his B-D associates, **ROBERT GREENE**, export manager, refused to call a West Coast trip anything but business and took two weeks off to paint his Connecticut barn. Not red, he wants it known.

MRS. HAZEL H. LEEDKE, supervising nurse, Thilmany Pulp & Paper Co., Kaukauna, Wis., has been elected national chairman of the Industrial Nursing Section of the American Nurses' Association.

ALBERT W. STOMPE, former general sales manager, Marathon Corp., Menasha, Wis., has moved to New York and accepted a position as general sales manager for Diamond Match Co., whose operations include a Pulp and Paper Division in northern New York. Mr. Stompe served many years on the board of governors of APPA and headed the Paper Napkin Association during that period. He lived in Menasha 15 years.

ARTHUR W. WETMORE, recent Stanford graduate, has joined Crown Zellerbach Corp., at Port Townsend, Wash., as technical assistant to the superintendent of the Multi-wall Bag Factory.

CLAYTON E. ROGERS, comptroller of the Puget Sound Pulp & Timber Co., Bellingham, Wash., has been elected to membership in the Controllers Institute of America.

W. E. SOLES, assistant general manager of Anglo-Canadian Pulp and Paper Mills, has been elected a member of the board. He joined the company in 1935 and has been with it ever since except for two years with its subsidiary Gaspesia Sulfito Co. at Chandler, Que.

CHARLES P. EVANS, formerly of the Crown Zellerbach organization at Camas, has been appointed woodroom foreman of H. R. MacMillan Export Co. pulp division, at Harmac, B. C. He was latterly with Bloedel, Stewart & Welch and International Pulpwood Supply Co., C-Z subsidiary on the Fraser River.

HAROLD CRABTREE was formally appointed chairman at Dinnaconna Paper Co.'s board meeting recently; **LOUIS W. MICHAEL**, president and treasurer; **HUGH MACKAY** and **E. HOWARD SMITH**, vice presidents, and **P. L. FITZGERALD**, secretary.

BLOEDEL, STEWART & WELCH LIMITED VANCOUVER, B.C.



LOGS

PACIFIC COAST LUMBER
UNBLEACHED KRAFT PULP
RED BAND CEDAR SHINGLES
PRES-TO-LOGS

Large Stands of Virgin Timber

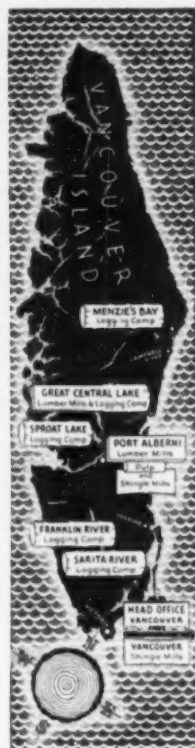
"HERE TODAY AND HERE TOMORROW"

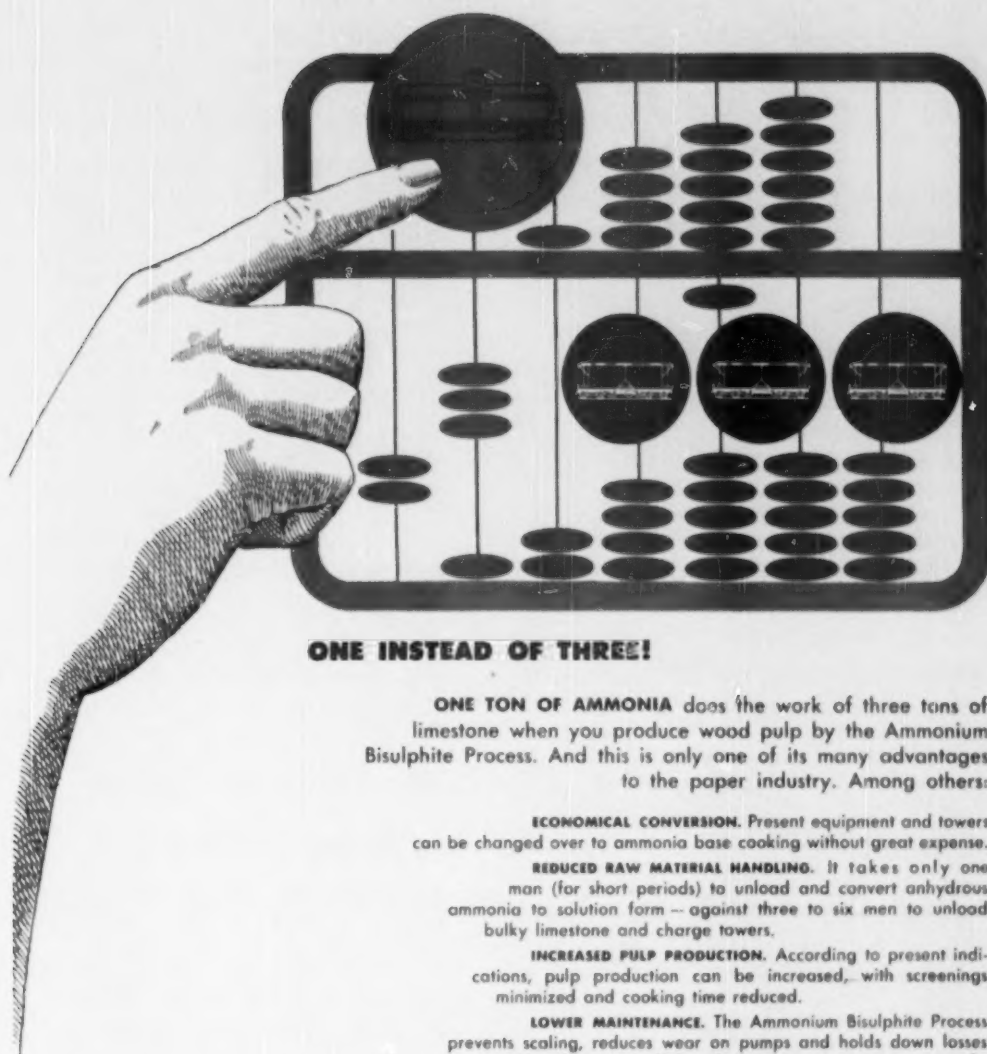
Sales Offices:

PORT ALBERNI and VANCOUVER, CANADA

Pulp Sales Agents:

UNITED STATES: THE MEAD SALES COMPANY, INC., 230 Park Avenue, NEW YORK, N.Y.
UNITED KINGDOM: PRICE & PIERCE LIMITED, 1058 Sun Life Building, MONTREAL, P.Q.





ONE INSTEAD OF THREE!

ONE TON OF AMMONIA does the work of three tons of limestone when you produce wood pulp by the Ammonium Bisulphite Process. And this is only one of its many advantages to the paper industry. Among others:

ECONOMICAL CONVERSION. Present equipment and towers can be changed over to ammonia base cooking without great expense.

REDUCED RAW MATERIAL HANDLING. It takes only one man (for short periods) to unload and convert anhydrous ammonia to solution form -- against three to six men to unload bulky limestone and charge towers.

INCREASED PULP PRODUCTION. According to present indications, pulp production can be increased, with screenings minimized and cooking time reduced.

LOWER MAINTENANCE. The Ammonium Bisulphite Process prevents scaling, reduces wear on pumps and holds down losses resulting from tank sludge drainage.

HEAT RECOVERY. Latest reports indicate that the heat produced in burning waste liquors will furnish the mill's entire heat requirement for evaporation and cooking.

Spencer Chemical Company, one of the nation's leading producers of ammonia, believes the many advantages of the Ammonium Bisulphite Process merit the careful study of your organization. If Spencer can assist you with information on ammonia, your request will be answered promptly -- by letter, wire or personal contact.

SPENCER CHEMICAL COMPANY

Executive and Sales Offices: Dwight Bldg., Kansas City 6, Mo.

Works:

Pittsburg, Kans. • Parson, Kans. • Chicago, Ill.
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We Offer Sincere Congratulations to

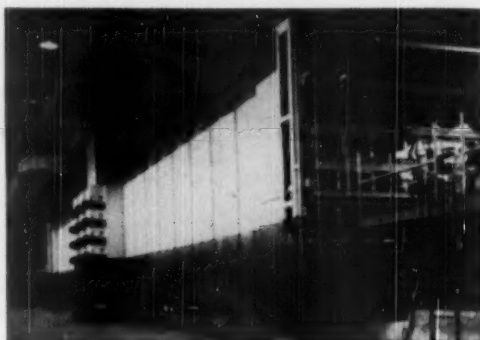
H. R. MACMILLAN EXPORT CO., PULP DIVISION

On Your Fine Contribution to the Pulp & Paper Industry. We Are Proud of the Installation of Our Pulp & Paper Machines in Your Mill.

Your Selection of Our Patented Equipment Implies a Handsome Compliment Which is Much Appreciated.

PML-KAMYR WET
MACHINES

S. F. FLAKT DRYERS



KAMYR BLEACHING
EQUIPMENT

SPIRAL HEAT
EXCHANGERS

Installation of the Patented S. F. Flakt Dryer at H. R. MacMillan Export Co., Pulp Division

We Cordially Invite Your Inquiries for Machines of Best Quality and Low Operation Cost

PAPER MACHINERY LIMITED

PAPER MILL EQUIPMENT LIMITED

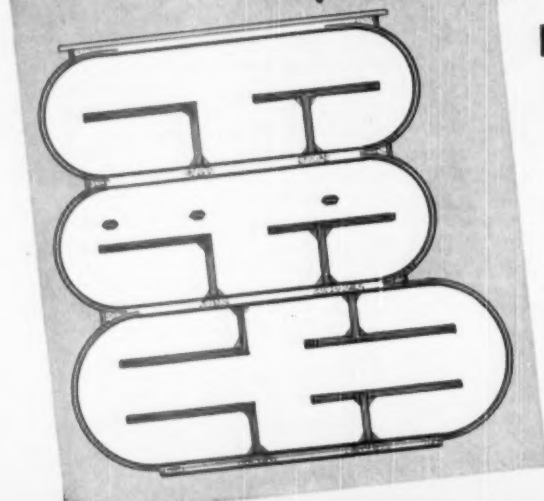
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150,000 cu. ft. of Storage Space



**built by STEBBINS
for Slush Pulp System**

THE three Semtile chests shown in plan will provide absolutely clean storage for three kinds of pulp in slush form, ready for pumping to the beaters or stock preparation system. When you have decided on your chest requirements for any stock handling or storage system, consult Stebbins to obtain the best possible construction for long time dependable service.



Stebbins Engineering Corporation

TEXTILE TOWER

SEATTLE 1, WASHINGTON

NEW MacMILLAN MILL

(Continued from Page 50)

lower section are a series of portholes. Here horizontal slotted pipes are placed each emptying into the central shaft. From the central concrete shaft filtered water is pumped directly into the mains. Two wells, the first to be operated in Canada, are supplying water.

Personnel Directing Mill; Engineers Who Built It; Advisors and Consultants

Overall direction of the MacMillan Company's operations is in the hands of an executive committee, consisting of B. M. Hoffmeister, president; W. J. Van Dusen, vice-chairman; Ralph M. Shaw, vice-president, with H. R. MacMillan as chairman and G. D. Eccott, secretary-treasurer.

Clifford Crispin is manager of the Pulp Division of the H. R. MacMillan Export Co. Identified with the lumber export business most of his career, he displayed organizing ability and was marked for the pulp mill management when this project was little more than a gleam in "H. R.'s" eye. He had been general manager of Canadian White Pine Co., one of the MacMillan sawmills.

L. G. "Larry" Harris, superintendent of the pulp mill, was with Brompton Pulp & Paper Co. at Red Rock, Ont.; Sorg Pulp Co. and Bloedel, Stewart & Welch in British Columbia, and he was one of Howard Simons' chief lieutenants in the planning of the MacMillan mill.

Donald Baker, technical supervisor, has also worked closely with Mr. Simons and was former assistant superintendent of the Bloedel mill at Port Alberni. He was with B. C. Pulp & Paper Co. from 1936 to 1940, and during war years was with Defense Industries, Ltd., at its nitro-cellulose plant in Valleyfield, Que.

R. E. Simkins, chief engineer, came to the MacMillan organization from Espanola, Ont., where he had been engineer for KVP Co., Ltd., subsidiary of Kalamazoo Vegetable Parchment Co. Geoffrey Jones, assistant engineer, had latterly been with mills in British Columbia and the east.

D. B. Rankin is office manager. E. F. Machell is chief chemist; Tom Collings, master mechanic; S. Peterson, chief electrician; Clarence Kennedy, traffic supervisor; Bev. Smiley, shift foreman; Charles Howard, shift foreman; Charles P. Evans, wood room foreman.

The Nanaimo mill adds prestige to Howard A. Simons as a designer of successful pulp mills.

Assisting him was a strong staff consisting of George Fletcher, purchasing agent and assistant to consulting engineer; T. Courts, material expeditor; T. Keillor, material warehousing; Val Gwyther, chief engineer, and G. C. Mackay, resident engineer.

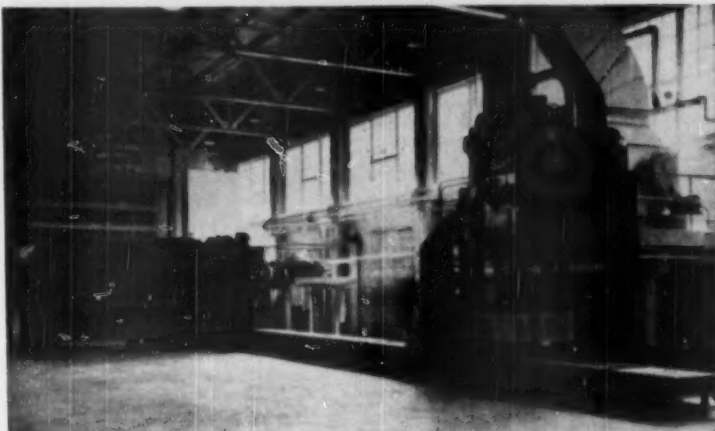
Successful completion of the mill also added lustre to the record of B. C. Bridge & Dredging Co., which had previously won distinction in the industry by work for Bloedel, Stewart & Welch at Port Alberni, Columbia Cellulose Co. at Watson Island and Powell River Co. at Powell River.

B. C. Bridge & Dredging Co. had more than 855 men on the job during its progress and about 60 trades were represented in the labor force, and it demonstrated it has the organization capable of undertaking a major project.

President W. G. Mackenzie assigned M. C. Freeman as job manager at the site of the project. At head office, engineering was in charge of L. G. Murray; purchasing, K. Hunter; personnel, H. Ayling, and accounting, V. E. Feimann. Directly on the job were J. Green, executive assistant to the manager, with J. W. Harrison job accountant. Superintendents were: Ivor Tucker, electrical; E. D. Gillanders, piping; Mark Watson, mechanical; L. LePage, mechanical engineering; R. Rudenskold, field superintendent; George Browning, millwright; G. Baillie, welding.

THE LAMB SYSTEM

IN THE NEW H. R. MacMILLAN PULP MILL AT
NANAIMO, B. C.



The entire production of this new mill will be processed for shipment with "The Lamb System" of automatic production machines for cutting, laying and conveying pulp.

Through the careful study of customer requirements for pulp finishing in both kraft and sulphite mills Lamb engineers have developed systems using automatic machines to economically produce quality bales.

The problem of conveying stacks of loose pulp has been solved by the use of "Airfloat" conveyor.

COMPLETELY DESIGNED, ENGINEERED AND MANUFACTURED BY

LAMB-GRAYS HARBOR CO., INC.
HOQUIAM, WASHINGTON

Registered Trade Mark, Patented.

Advisors and consultants on wood use were Dr. John S. Bates, director of Price & Pierce, Ltd., for Canada, and formerly superintendent of the Forest Products Laboratories of Canada; Dr. E. C. Jahn, director of research on wood chemistry at New York State College of Forestry; and E. S. Fellows, chief forester of the Eastern Rockies Forest Conservation Board, Calgary, Alta.

From Coal to Wood Pulp; An Area's Transition

Striking transition in a region's industrial economy is represented by the H. R. MacMillan Export Co.'s pulp mill on Northumberland Channel, seven miles by highway south of Nanaimo, on Vancouver Island's east coast.

For nearly a century Nanaimo was famous for coal. While the coal deposits in the immediate vicinity of the city have been depleted, Nanaimo has taken a new lease of life as the center of wood utilization activity. The Nanaimo area now derives most of its revenue from the surface instead of from below the ground.

The softwood forests of Vancouver Island, extending south from Nanaimo and comprising the so-called Esquimalt & Nanaimo belt have

long been regarded among the most valuable in the world, and have provided raw material for some of British Columbia's largest sawmills.

"I visualize Nanaimo as a central city serving several pulp mills," said H. R. MacMillan recently. "Once you establish a community based on pulp nothing can stop it. There is nothing to use up or wear out. Conditions on Vancouver Island are practically perfect for production of pulp—plenty of timber, water-power, existing communities, natural harbors, transportation."

Fourth Mill on Island; Two More May Be Built

The H. R. MacMillan Export Co.'s kraft mill at Harmac, near Nanaimo, B. C., is the fourth to be located on Vancouver Island, long famous for its commercial forests, and there are indications that at least two more will be established there during the next few years.

The first pulp mills on Vancouver Island were built near the extreme north and south—the Port Alice mill of B. C. Pulp & Paper Co. being on tidewater near Quatsino Sound and Sidney Roofing & Paper Co. in Victoria harbor.

At Port Alberni on the west coast, Bloedel, Stewart & Welch brought a 250-ton unbleached kraft plant into operation in 1948.

SERVICE *for the* WEST COAST

We are pleased to announce the opening of our West Coast headquarters in Portland, Oregon with Mr. S. A. Salmonson as representative and Mr. J. M. Cyener in charge of lining crews. Both Mr. Salmonson and Mr. Cyener are well known to pulp and paper mill operators throughout the Northwest and British Columbia.

Chemical Linings, Inc. provides a complete lining service for all pulping processes—by men who know this work and the importance of reliable performance to the mills.

CHEMICAL LININGS, INC.

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Pacific Coast Representative:
S. A. SALMONSON
907 Terminal Sales Building
1220 S. W. Morrison Street
Portland 5, Oregon
Phone Atwater 4107

(Continued from Page 84)

heating and ventilating system will be supplied by Ross Engineering Corp.

Washers will be from Improved Paper Machinery Corp. and Oliver United Filters Co. and they will be driven by Reliance Electric and Engineering Co. motors. Evaporators will be supplied by Goslin-Birmingham Mfg. Co., of Birmingham, Ala. Chicago Bridge will fabricate digesters.

Not all equipment had yet been contracted for as this issue went to press. Maj. Friend did say that the new power plant will furnish total power for both old and new production, using high pressure boilers and with electric generating capacity of 25,000 kw. Two high pressure, gas-fired steam generating power boilers will be installed as well as two modern black liquor recovery boilers. Black liquor is processed elsewhere by IP into vegetable fats and rosin. The recovery units will replace the old rotary type.

New electric precipitators will be installed with a 250-ft. high stack. A new lime kiln with equipment for recovering lime dust and new 125 ft. stack are other additions.

For just this expansion at Moss Point, Maj. Friend said IP would spend an additional \$1,500,000 a year for wood, and \$376,000 a year with railroads and truck haulers.

In Attractive Area

A quiet spot along the Gulf of Mexico shores, the Pascagoula area which embraces Moss Point, is noted for its excellent fishing and hunting. It is backed by hundreds of thousands of sparsely

populated Southern pine and hardwood forest acreage, and at its door is the finest of deep sea fishing. Fresh water fishing is excellent.

Moss Point is on the Pascagoula river, noted by the legend from which it derives its sobriquet "The Singing River." Part of the original French settlement which started at Mobile and reached along the coastline to New Orleans, the Pascagoula received a number of pioneers from other sources. An historical point outside of Pascagoula is the "Old Krebs Fort," established as a protection against Indians by an early settler from Germany who married the widow Chaumont.

Pascagoula has a modern shipbuilding yard, a large fishery, and possibly soon will serve tuna to the eastern markets. It is 105 miles from New Orleans. A short railroad connects with trunk line systems, delivering paper from the mill and other products; receiving chemicals and raw materials for the mill. It is rated among the most profitable railroads in the United States.

Riegel's New Mill

Riegel Paper Corp. has already "rush" ordered major equipment for a \$13,500,000 200-ton bleached kraft pulp mill at Acme, Columbus county, N. C. It will be on Cape Fear River, adjacent to the company's 150,000 acres of forest lands bought in 1937. The subsidiary will be Riegel Carolina Corp.

Part of the pulp production will be sold on open market and the remainder will supply Riegel's needs in its Jersey

mills. Completion is scheduled for Jan. 1, 1952.

J. E. Serrine Co. are project engineers and C. M. Guest & Sons, contractors. The state, county and city warmly support the project and the state plans a new river bridge at the site.

Salmonson Represents Chemical Linings, Inc.



Sam A. Salmonson (in picture) a sulfite superintendent for about 40 years in mills from Maine to Washington, has come out of semi-retirement to be the Pacific Coast representative of Chemical Linings, Inc., of Watertown, N. Y.,

headed by Murray H. Bennett. Mr. Salmonson's business address will be Chemical Linings, Inc., 907 Terminal Sales Bldg., Portland 5, Ore., phone Atwater 4107.

The west coast crew for Chemical Linings will be headed by J. M. Cyener, a veteran linings expert.

Mr. Salmonson, since his retirement a few years ago as general superintendent of Soundview Pulp Co., has operated an Oregon seaside motel and has been active in other work out of his home in Portland. His first superintendency was at the Rumford, Maine, Oxford mill in 1907. He was later at Powell River, B. C., as assistant superintendent; then helped build the Moss Point, Miss., mill of IP; then superintendent at Riordon's Merriton, Ont., mill, general superintendent at its Temiskaming, Ont., mill when that was newly built (his brother, Victor, is superintendent there now); then he went west to Port Alice, B. C.; later was superintendent at Crown Z's Camas mill, and headed all its sulfite operations from 1930 to 1935, when he joined Soundview.

Bergstrom Pay Increases

A voluntary 4-cent hourly wage increase was granted employees of Bergstrom Paper Co., Neenah, Wis., as announced by Nathan Bergstrom, president, recently. This brings the mill's base rate to \$1.10 and \$1.10 for women. Also vacations were liberalized.

WEST COAST POSITION WANTED

I am seeking employment on the West Coast in the capacity of Purchasing Agent. I am 48 years old and presently employed in the Midwest, but would like to make a change. For over 20 years with one company in New England and would like to be identified again with the paper trade. I can furnish excellent references. Please reply to Box P&P-80, PULP & PAPER, 71 Columbia Street, Seattle 4, Wash.

SALES ENGINEER

Wanted, to call on industries in northwest Washington state. Pulp mill process equipment and alloy steel experience helpful but not entirely necessary. Prefer a younger man already located in this territory. Please reply to Box P&P-82, PULP & PAPER, 71 Columbia St., Seattle 4, Wash.

Taylor to Address Foremen's Convention

Radio commentator Henry J. Taylor will highlight the 27th annual meeting of the National Association of Foremen (Management Men of America) in Buffalo, Sept. 13-18, said President B. A. Hodapp (Peerless Saw Co.), president of the 40,000-member association. More than 1500 delegates and participants are expected at the Statler.

Southern Pilot Plant

Southern regional members of the National Council for Stream Improvement, meeting at Jacksonville, Fla., voted unanimously to build a pilot plant for further development of its biological treatment study of wastes. The site will be at a Southern mill yet to be selected.

Second Hydraulic Barker

Publishers Paper Co., Oregon City, Ore., will bring into production early this fall its second hydraulic log barker. This is a Bellingham type unit, manufactured by Sumner Iron Works, to take logs up

to 10 ft. in length and 36 in. diameter. According to Carl E. Braun, vice president and mill manager, installation of this new small-log barker will increase production and economies through the added barking capacity and also by keeping the large barker on the larger logs.

The company's old Mill H sawmill has been entirely abandoned, the operations formerly carried on here have been moved to the barker building.

Business Control Laws

Here are controls brought into effect because of World War II and conditions existing after the cessation of hostilities:

Second War Powers Act, 1942
Rubber Act of 1948
Housing and Rent Act of 1947
Export Control Act of 1949
The National Security Act of 1947
National Industrial Reserve Act of 1948
Selective Service Act of 1948 (amended)
Foreign Assistance Act of 1948

New measures are designed to give the President allocation, rationing, price and credit controls.

Coast TAPPI Schedule

Pacific Coast TAPPI Section dates for 1950-51 announced by E. I. Thieme, Soundview Pulp Co., chairman:

Sept. 13—Meany Hotel, Seattle—Pulp Purification.

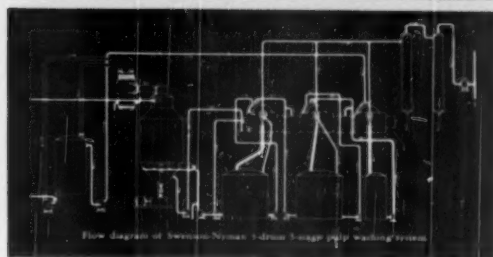
Nov. 7—Camas, Wash.—Printing and Printing Papers.

Feb. 6—Olympia, Wash.—Engineering.

April 13—Longview, Wash.—Shibley Contest.

Ray Hatch, ex-Weyerhaeuser, will moderate the Seattle meeting. Papers on alpha cellulose determination, by John McNair of Weyerhaeuser; on dissolving pulp, by a Forest Products Laboratory speaker, and on chlorine dioxide bleaching, by two authors, are scheduled.

LLOYD HEARD, until recently general superintendent of Ontonagon Fibre Co., Ontonagon, Mich., was employed by Longview Fibre Co., Longview, Wash., starting first of July.



Send for Bulletin E-108

- Evaporators
- Pulp Washers • Deckers • Filters
- Digester Blow Condensers
- Surface Condensers
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PULP IS WASHED CLEANER

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REDUCES DILUTION through multistage operation

CUTS STEAM COSTS by reducing evaporator loads

ELIMINATES SEWER LOSS because it operates as a closed system

REDUCES SALT CAKE LOSS to the small amount (20 to 50 lb per ton) passing through with pulp

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NEW APPOINTMENTS—L. to r.: D. G. Currie, Mgr. of Mfg.; H. Crabtree, Mill Mgr. of Specialty Paper Mills; C. B. Davies, Mill Mgr. of Pulp and Newsprint Mills of The E. B. Eddy Co. of Hull, Que., and Ottawa, Ont. Their appointments are announced by Gen. Mgr. A. Welch.



PEDIGREED DOGS

THE SEALYHAM—Once a working terrier whose short legs enabled him to hunt underground, is now popular as a house dog.

The **DRAPER** *Felt*

The Felt with a Pedigree

DRAPER BROTHERS COMPANY

Woolen Manufacturers Since 1856

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RALPH E. BRIGGS, Sales Manager

BRADFORD WEST, Pittsfield, Mass. WILLIAM N. CONNOR, Jr., Canton, Mass. L. H. BREYFOGLE, Kalamazoo, Mich.
WALTER A. SALMONSON, 2514 Northeast 59th Ave., Portland, Oregon L. L. GRIFFITHS, Jr., Kalamazoo, Mich.
HAROLD H. FISH, Syracuse, N. Y.

Pacific Car Enlarges Structural Steel Plant

With its new \$500,000 addition completed, and new steel fabricating equipment in use, the Structural Steel Division of Pacific Car and Foundry Co., Seattle, is operating at close to 1,000 tons a month capacity.

Pacific Car and Foundry Co. has long been a major manufacturer of "Carco" line logging machinery used by pulp and paper mills and other logging operations throughout the United States and Canada. Its Kenworth Division produces the Kenworth logging trucks.

The 85x420-foot new building and two new 15-ton Ederer bridge cranes, will step up fabrication on large steel jobs. The plant is now equipped to build steel tanks, hoppers, bins, and other plate fabrications.

Paul Pigott is president of Pacific Car and Foundry Co.

HOMAD SERVICES, LTD., of Montreal, equipment and engineering firm, is named for its two officers—the first two letters of Homad for Frank J. Hoar, president, and the last three for F. S. MacDonald, who is vice president and treasurer.

Newport News Firm Appoints Midwest Agents

The Newport News Shipbuilding and Dry Dock Company of Newport News, Virginia, has announced the appointment of the Hooper-Green Co. of Chicago and Indianapolis as its Middle West pulp and paper equipment sales representative. The company is headed by J. G. Green, with offices at 407 South Dearborn St., Chicago. A. J. Stone is district representative of Indianapolis, at 213 East Michigan St. The company will cover Indiana, Illinois, Southwestern Michigan and part of Wisconsin and Iowa.

Black-Clawson Names Gibson

A. G. Gibson has been named director of export engineering of the Black-Clawson Export Department with offices at Middletown, O. Mr. Gibson will join with many export agents of Black-Clawson and with the Black-Clawson British subsidiary in recommendation and specification of papermaking machinery for foreign markets.

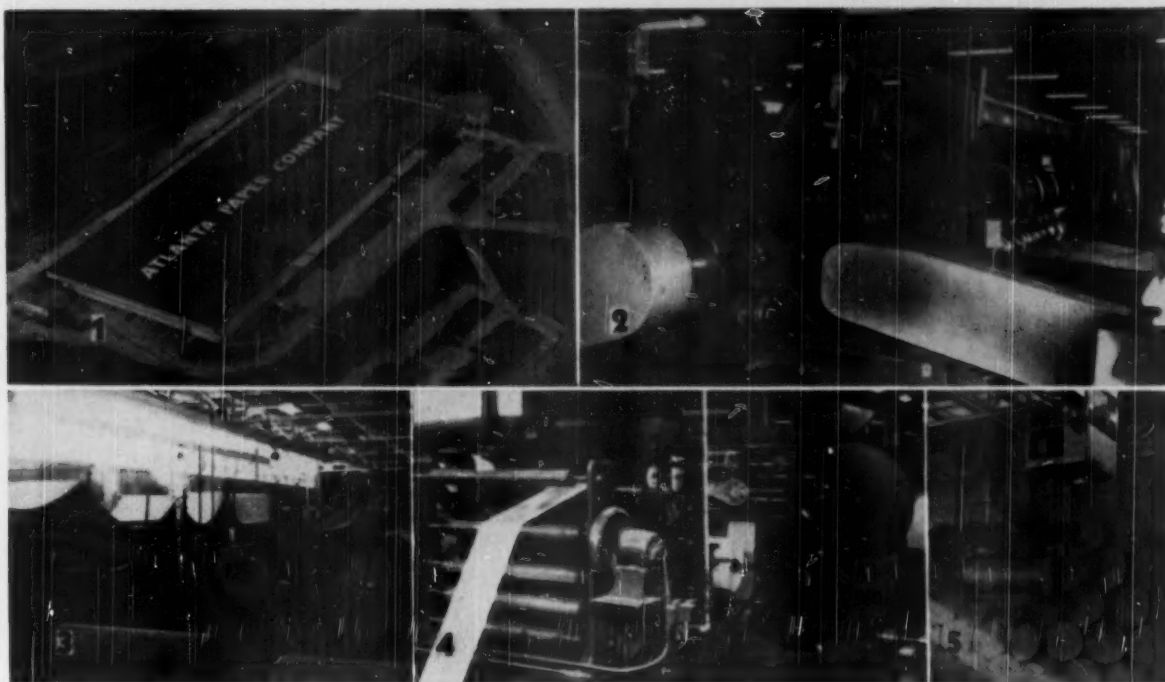
Mr. Gibson spent 13 years with Black-Clawson, was sales and production engineer, and in charge of improvement of product design and manufacturing at Shartle division.

Spencer Sales Representative

Spencer Chemical Co., Kansas City, Mo., announces appointment of Harold A. Ford, University of Virginia graduate, as industrial sales representative. With others of the industrial group, he will be active in development work in the ammonium bisulfite process for wood pulping.

A MODERN GEORGIA PLANT

Atlanta Converter Increases Efficiency



1—AIR VIEW OF NEW PLANT of Atlanta Paper Co. in Atlanta, Ga.
2—HOOPER PRINTER AND SLOTTER for the Atlanta Paper Co., photographed by PULP & PAPER editor. It has no idle time on its hands.

3—MODERN 78-INCH CORRUGATOR in the Atlanta Paper Co.'s new plant has Reeves drive. Cutter is by Geo. W. Smith Jr. in Bordentown, N. J. Laminator is from the Clark-Aiken Co. in Lee, Mass.

4—GLASSINE BAG AND PRINT MACHINES from Bagprint Machine Corp., Royal Oak, Mich. are used in the Atlanta converting plant.
5—THIS 10-TON SHEPPARD & NILES OVERHEAD CRANE lifts roll stock into storage and places rolls in machines adjacent to the pit.

In general publicity releases earlier this year, the Atlanta Paper Co. of Atlanta, Ga., received considerable attention for its fine new \$750,000 converting plant. A PULP & PAPER editor visited the plant to find out more specific details about the production techniques and layout of this new landmark in Atlanta, and found out that the publicity was entirely justified and the South has here an installation of which it and the Atlanta Paper Co. can both be proud.

Called the largest converting plant under one roof in the South, this company has achieved in its new layout a considerably increased efficiency. Excess handling of production and shipment which occurred in the old plant on Moore St. has been eliminated. There is no back-haul or criss-crossing in the new one at 950 Marietta St. N. W.

The site is 1,063 by 554 feet on Ashby, with eight of the 17 acres covered by its brick and steel building. Paved parking space accommodates 200 automobiles of employees and others and there is an excellent cafeteria service.

The main building, devoted to conversion and shipping, measures 600 by 250

feet, flanked on each side by shipping platforms, one for trucks and one for rail. Adjoining this is a section 265 by 168 feet for receipt of paper and storage space for 7,000 tons, plus the corrugator. Paper is handled for storage by a 10-ton Sheppard & Niles overhead crane. When outgoing, the paper is placed on floor conveyors furnished by Engineering Products Co., Chicago. A fleet of seven fork-trucks services all sections.

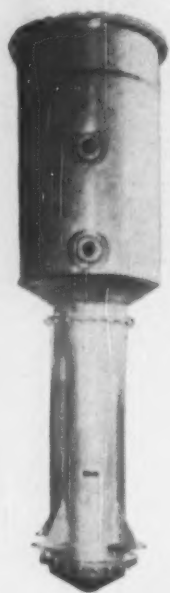
The corrugator is a 78-inch wide unit, complete with double rotary knives, and is completely modern. The drive is by Reeves; cutter from Geo. W. Smith, Jr., Inc., Bordentown, N. J., and the laminator from Clark-Aiken Co., Lee, Mass. Francis mixers mix glue. Corrugator production is up to 475 feet per minute.

The principal production building has box equipment at one end and the bags and specialties at the other. In each instance the production lines feed toward the shipping department in the center. This makes possible the organization of shipments for either truck or railroad, in mixed lots or straight loading, without any reversal of flow of materials. Steam used in all phases is furnished by a 275 hp. Babcock & Wilcox boiler.

Most equipment was transferred from the old location. It includes Bagprint Machine Corp. units, Hooper printers and slotters, Kidder Presses, Potdevin Class 80 self-opening square grocery bag machinery, and Stande gluers.

The Atlanta Paper Co. was founded in 1868, as the Elsas-May Paper Co. It became incorporated in 1886 as the Atlanta Paper Co. by Isaac Liebmann, who was president. He was succeeded by his son-in-law, Arthur I. Harris, now chairman of the board, whose son, Arthur L. Harris, is president. Officers include: Henry H. Ogden, executive vice president; Reuben L. Moss, secretary-treasurer; Louis Regenstein, assistant secretary-treasurer; and Virgil Shutze, vice president in charge of sales.

Sales average currently 14 to 15 million dollars, and its 700-person payroll runs to \$2,400,000 annually. It has jobbing branches in Macon, Ga.; Knoxville, Tenn., and Little Rock, Ark. The company is constantly striving to produce some item in conversion from paper and/or board that will render a specific service to the complex production and distribution of the manifold expressions of the American economy.



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Seattle, Washington

Longview Fibre's Safety Record—2,875,539 Man-Hours

The safety record of Longview Fibre Co., Longview, Wash., which received national industry attention as it passed two million man-hours without lost time injury, finally wound up with 2,875,539 man-hours June 19—320 days without lost-time injury. An accident in the bag factory terminated this record. Already a good start has been made on an extended record with 41 safe days rolled up by August 1.

Previous lost-time injury in the bag factory was June 13, 1947. This department set a record of over three years' operation without lost time injuries, averaging 25,000 man-hours work per month. It was the first manufacturing division to operate a million hours without lost time injury.

R. L. Mullen, safety director, said Longview's frequency rate of .64 is tops in the nation's larger pulp and paper mill group for the first six months of this year.

Greenes Tour Europe

William E. Greene, president of the W. E. Greene Corp., of 233 Broadway, New York, accompanied by Mrs. Greene, sailed on the Gripsholm July 3 for Gothenburg, Sweden. Mr. Greene will renew old acquaintances in paper mills in Finland, England, France, Switzerland and Germany. He is chairman of the board of Stowe-Woodward, Inc., of Newton Upper Falls, Mass., also represents Lodding Engineering Corp., Worcester, Mass. He and Mrs. Greene planned to return in September.

Barrell's Paper Annual

The high state of organization of the paper industry of the U. S. is emphasized by the *Directory of Officials of Paper Industry Associations*, published yearly in Barrell's Paper Annual, of which Volume IX is now being distributed, "as a service to the paper industry," free of charge by Wm. L. Barrell Co., 52 Chauncey St., Boston, Mass., to whom requests for copies should be addressed.

This directory lists 31 different associations and includes the names of 378 elected officials and 38 paid executives. It is the only up-to-date list available.

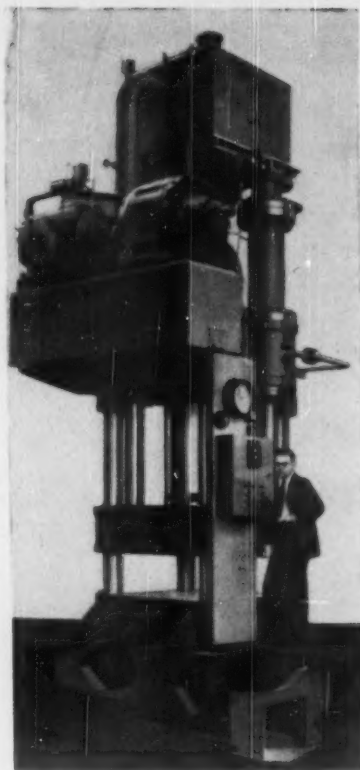
Also the Annual includes "Progress in Paper-making," by William Bond Wheelwright, a bird's-eye view of the subject from the invention of papermaking in 105 A.D. to the present time. Other articles: "Paper Engineering at Lowell Textile Institute," by Dr. Geoffrey Broughton, head of the department, and "Great American Research Laboratories," which has hitherto described the facilities of Hercules Powder and du Pont and this time covers activities of the Monsanto Chemical Co. The Annual is produced by The Callaway Associates of Boston.

Two Murdock Prizes

Hiroshi Eguchi, chemical engineer, Kokusaku rayon pulp company, was the first, and not second winner (as was recently reported) of the Harold R. Murdock Prize donated by Dr. Murdock for outstanding Japanese technical work. It was confused with the Murdock Medal of Award, a prize established by the Japanese industry in appreciation of Dr. Murdock's work.

JACK CAIRNIE, assistant groundwood superintendent, Ontario Paper Co., Thorold, Ont., is the new groundwood superintendent at Quebec North Shore Paper Co.'s newsprint mill at Baie Comeau, succeeding C. A. NEWMAN, who has been transferred to Ontario Paper Co., Thorold, Ont., as groundwood superintendent.

D. M. HOGARTH, vice president of Great Lakes Paper Co., and for many years prominent in Canadian financing of mines and pulp development, died recently in Toronto, aged 75.



New Giant Pulp Baler

One of a pair of 1,000-ton rapid traverse pulp baling presses recently delivered by Washington Iron Works, Seattle, to a west coast pulp plant is shown above. Completely automatic, they utilize 150-hp., General Electric drive, Oilgear pump and valving units, operating at 2,750 p.s.i., and Westinghouse control and timing panels. Presses were designed, manufactured and tested in plant of Washington Iron Works.

Larry Woodside Talks on Paper Machine Felts


Larry Woodside, service engineer, Albany Felt Co., Albany, N. J., was featured speaker at the July 20 dinner meeting, Paper Makers & Associates of Southern California, at Lynwood, Calif. His subject was "Paper Machine Felts," accompanied by a film, "Art of Felt Making."

The largest attendance in many months, 75 members of Southern California's papermaking and allied trades came out to hear Mr. Woodside.

The new Chairman, Claude Sharp, Los Angeles Paper Box Co., presided. Joseph Cooley, secretary-treasurer, Angelus Paper Box Co., received a leather brief case in appreciation of his work. Bruce Brown, Jr., technical director, Fibreboard Products Inc., reported the Superintendents' convention in Chicago.

Committees for the coming year were announced, the chairmen being: program, Floyd Adams; membership, D. Earle Arnett; educational-public relations, John Van Ounsem; historical, Charles Frampton; safety, Ernest Dutcher; Cunningham award, W. T. Birdsey; 10-Year committee, Arthur Kane.

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High Grade
**BLEACHED
SULPHITE PULP**

SOUNDVIEW PULP COMPANY
EVERETT WASHINGTON



CONVERTERS SOLVE WRINKLING AND CREASING PROBLEMS

**Mount
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WITH FREE-WHEELING EXPANDERS

"We have at least one Mount Hope Expander in use on every machine in our plant, and are completely satisfied with their performance!"

This report by one of the largest N. E. Paper Converting Companies is typical of the complete satisfaction expressed everywhere.

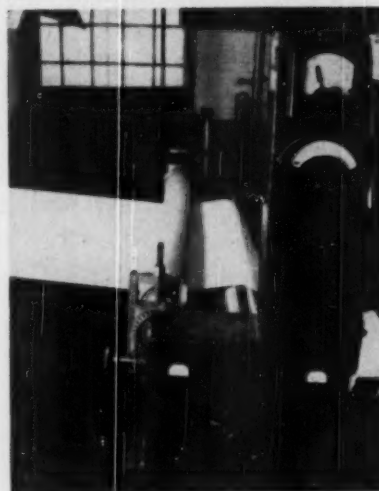
Mount Hope Expanders are used on all types of machines to eliminate wrinkles and creases and to improve paper quality.

Equally effective on dry or wet paper. They eliminate wrinkles and baggy edges that cause out of register printing on offset and lithographic presses.

It will pay you to investigate the advantages of Mount Hope Expanders in your plant.

A Mount Hope Engineer is at your service without obligation

Send today
for
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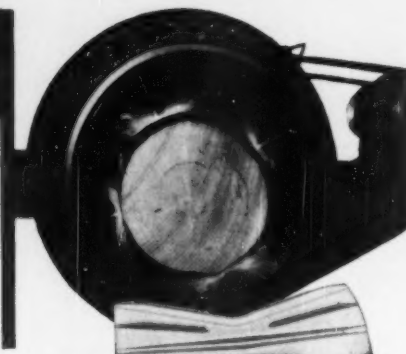
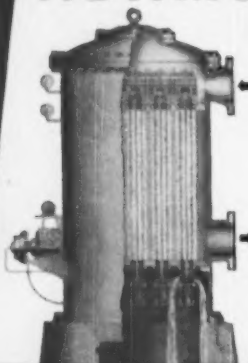
Installation of Mount Hope Expander at Appleton Coated Paper Co. — prevents wets and wrinkles on Kohler Rewind.

MOUNT HOPE MACHINERY COMPANY
42 Adams St., Taunton, Mass.

at Port Alberni, B. C. . . .

**THE LAST WORD IN LOG BARKING
STARTS WITH . . .**

ADAMS WATER FILTERS



To convert raw water into a tool that blasts bark from logs of any shape or size, Bloodel, Stewart and Welch installed a matched team of Adams Automatic Water Filters ahead of their new Hansel hydraulic barkers.

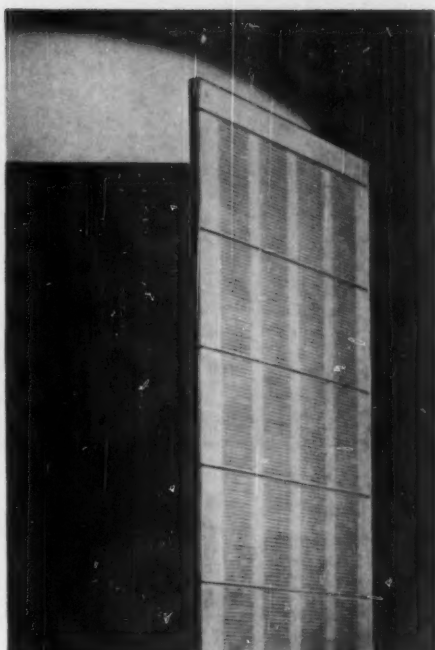
Of critical importance in the barker's continuous, fast production and low maintenance are the films of lubricating water for seal rings as well as for main and thrust bearings. Complete removal of abrasive solids from the Port Alberni water source was necessary if precision-machined surfaces were to deliver full performance.

Experiment under actual conditions proved the need for a filter that would not only remove all solids down to 40 microns, but would backwash automatically — a clear case for the Adams AWF Filter with exclusive Adams Para-Stone filter tubes. " . . . Adams filters were installed and are performing admirably," states B.S. & W. resident manager.

If you would convert water — your cheapest raw material — into a modern production tool for pulp, paper, and saw mills, investigate the R. P. Adams line of water filters now.

*Ask to be placed on the list for the new 20-page, file size booklet on Industrial Water Filtration, now ready for distribution.

R. P. ADAMS CO., Inc. 210 E. Park Drive, Buffalo 17, N. Y.



3 Good Reasons Why 28,000 FABRICATED SCREEN PLATES Are Now In Service

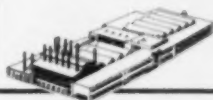
"Hardy" fabricated screen plates, made by Magnus, have a high-strength, thin-sheet design — specially engineered for maximum flow. That's why you're sure of these 3 service-proved advantages:

(1) **Increased Plate Capacity** — The thin sheet eliminates relief milling, and with recommended arrangement, substantially increases capacity per plate.

(2) **Longer Life** — Slots remain sharp, side walls highly polished for the life of the plate. There's greatly improved corrosion resistance.

(3) **High, Sustained Yield** — You get consistent, uniform quantities of cleaner pulp.

It all adds up to improved performance at reduced operating costs. Complete information is yours on request. Or if you like, we'll gladly have an engineer call.



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Metalworkers for the Paper Trade

SCREEN PLATES: BRONZE, CHROME, NICKEL-STEEL, AND INCONEL
VALVES, GATE, SWING CHECK, BLOW, GLOBE, ANGLE AND "Y"

Gosh! Man, It's **PERFECT...**



Buyer:

This is what we have been hoping for. Not a felt mark on either side. How do you get them that way? Some secret process, I suppose.

Salesman:

No secret about it. We use Hamilton Felts, top and bottom, at every press—finish both sides alike. Not a felt mark in a carload.

Buyer:

Must be pretty expensive.

Salesman:

On the contrary, Hamilton Felts last so much longer that we have found it actually cheaper to use two of them than to use only one ordinary felt.

Buyer:

We will give you a trial order. But if the delivery is not up to the standard of this sample—

Salesman:

It will be. Thanks a lot.

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Are you getting the finish you need to combat competition? Has your paper the quality that reflects superior calendering . . . gives it added sales appeal?

Many of America's leading paper mills standardize on Butterworth Calender Rolls for smoother, better quality finishing. We believe that the results obtained from only one of our rolls placed in your calender stack will convince you of their superiority.

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Butterworth Calender Rolls are made of the finest materials available, to exact specifications. Pretested for strength, hardness and density before delivery.

We make calender rolls for all types of calendering in every size to your specifications. We can also refill your present rolls.

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Rolled Bronze and Copper

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FITCHBURG Screen Plate Co., Inc.

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Pacific Coast Rep.: Jack E. Johnson, Holly Acres, Oswego, Oregon

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Rubber Covered Rolls are only as good as the men who make them. On every carefully boxed roll that Raybestos-Manhattan ships there are instructions for storing that are headlined, "This Roll Was Rubber Covered by Specialists on Rubber Covered Rolls of Every Description." At Raybestos-Manhattan, the Man is as important as the Machine. Despite the precision of the most modern roll covering machinery, there are hand operations, like capping the ends as shown here, where quality depends on the care and skill of the craftsman. Paper mills rely upon R/M roll covering plants where one workmanship and service insure a longer run for your rolls and consequently lower costs for your mill.

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PATENTED*

This nationally famous chain, and its exclusive Fast-File Tooth, designed to increase the cutting efficiency of all makes and models of powersaws, is now sold under U.S. Patent No. 2,508,784. There is no substitute, no duplicate, no equal for fast, economical performance and easy, correct sharpening. Look for the OREGON Saw Chain patent number when you buy cutting chain. It assures you of unmatched quality.

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Precision built from special alloy steels by saw chain specialists, OREGON Saw Chain is guaranteed for sixty days against defective workmanship and material. Try this chain and you'll soon discover why the manufacturer stands squarely behind it.

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Increasing thousands of timber workers using all makes of power saws in all species of timber are installing patented, guaranteed OREGON Chain because it does a better job for them. Their acceptance is your stamp of approval.

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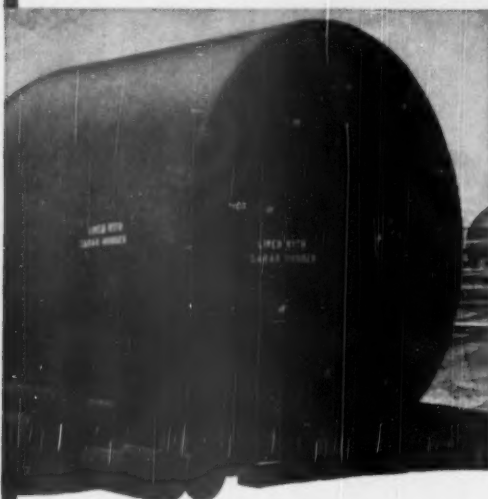
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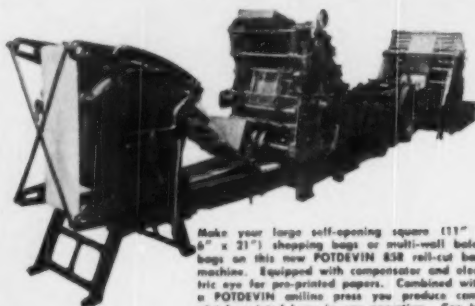
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**SELF-OPENING SQUARE
SHOPPING AND BALER BAG MACHINE**



Make your large self-opening square (11" x 6" x 21") shopping bags or multi-wall baler bags on this new POTDEVIN 858 roll-cut bag machine. Equipped with compensator and electric eye for pre-printed papers. Combined with a POTDEVIN on-line press you produce completely printed bags in one operation. Can be equipped with hole punching and scoring for string handles. Available with either upright or inverted former for sift-proof bags.



MULTI-WALL TUBER

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Designers and manufacturers since 1893 of equipment for Bag Making, Printing, Coating, Gluing and Labeling.



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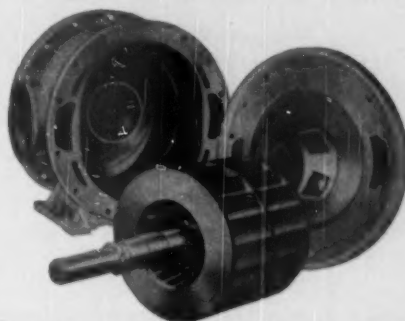
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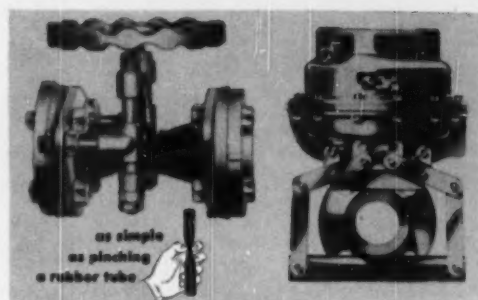
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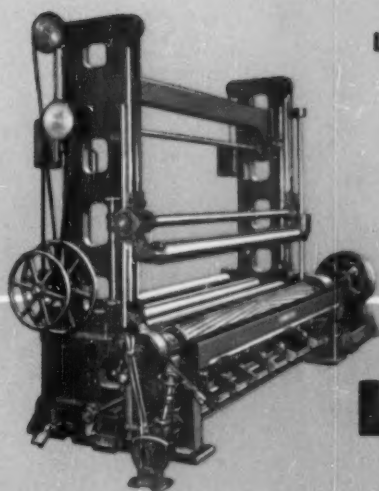


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